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RESEARCH IN EXTENSION

Report of
a National Workshop

May 9-13, 1955

Washington, D. C.



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FOREWORD

Research designed to measure the effectiveness of our educational activities and to point the way toward improved procedures is needed urgently. Opportunities for more effective teaching have increased with more rapid, widespread communications; with a more mobile farm population, and with an expanding interest and confidence in experiment station results. The need for seizing these opportunities is greater, also, as farm families face the adjustments forced by technical advances and world-wide economic and social changes. Our responsibility is to keep abreast and adapt our methods to the current situation.

Studies of extension methods and an expanding, imaginative analysis of our educational procedures are essential if we are to keep pace with farm people. We believe the combined, cooperative effort represented by this workshop and the pooled information recorded in this report marks another definite forward step in Extension's continuing endeavor to be of service.

C. M. Ferguson, Administrator
Federal Extension Service

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RESEARCH IN EXTENSION

Report of a national workshop to consider the design and conduct of State and regional projects for measuring the results of Extension's educational activities and for discovering improved ways to work with individuals, groups, and organizations. Special attention was given to reaching low-income families and to farm and home development.

PURPOSE OF WORKSHOP

Meredith C. Wilson
Director, Division of Extension Research and Training

Every worthwhile effort calls for clear objectives.

Broadly speaking, this conference or workshop is concerned with the improvement of extension. We shall be considering the scientific approach to problem-solving. Our discussions will be dealing with how to plan extension research; how to collect evidence that will be objective, valid, and reliable; how to analyze the data; how to interpret and report findings; and lastly, how to get research findings into common extension use.

Expressed in more specific terms, the conference sessions are expected to contribute to:

- (1) The planning of a comprehensive, nationwide program of research in extension commensurate with extensions's needs and possible with augmented resources.
- (2) The implementation of extension research through the exploratory approach in the two areas of:
 - (a) Farm and home unit approach.
 - (b) Effectively working with low-income farm people.
- (3) The outlining of pattern studies in:
 - (a) Evaluation of program outcomes.
 - (b) Efficiency of teaching methods.
- (4) A heightened appreciation of good research design and high standards of analysis.
- (5) A shifting of emphasis from relatively simple studies, which help develop an understanding of the scientific approach, to the kinds of studies which will contribute to the building of a body of scientific knowledge about the conduct of extension.
- (6) A keener realization of the place of extension research in the extension scheme of things.

Much of the value of this gathering of people with a common professional interest will come about as the result of contacts which take place outside the scheduled sessions.

We are delighted that you are participating in the workshop and believe that all of us, as individuals, and the Extension Service, as an organization, will profit from the experience.

NEED FOR INCREASED EMPHASIS IN EXTENSION RESEARCH

Paul V. Kepner, Deputy Administrator, Federal Extension Service

Extension is now a \$100,000,000 institution with approximately a 10 percent increase in funds anticipated to be available from all sources for fiscal year 1956. As a public institution supported by taxpayers' money we need to take all necessary and practicable steps to insure that we are meeting our stewardship as efficiently as possible. In order to do that we need more well-organized evaluation of what we are doing and how we are doing it. For our own satisfaction we need to take a good searching introspective look at ourselves. At the same time we need to be able to assure those to whom we are responsible, all the way from the families we serve to appropriating bodies, that we are thoroughly modern in our efforts and using the most efficient means to serve all of our clientele.

Extension has passed the days of relative simplicity. We are now working in a more complex age. We are faced with more competition for the time and attention of those we were established to serve, competition from other attractions, and competition from more recent services established to serve the same clientele as Extension was established to serve.

There is within Extension a growing consciousness of the need for a careful evaluation of all that we are doing. This is attested to, by the very fact that this group is meeting in a week's workshop to ascertain, among other things, how we can do a better job of evaluating our responsibilities, our opportunities, our problems, and our methods. This is highly commendable and, by the same token, highly necessary. The best that I can do is to raise a number of questions with you which I hope will be indicative of at least some of the major facets needing investigation. These certainly are not all-inclusive. Neither are they of equal weight nor listed in any order of priority. However, they do reflect questions to which we should have more definitive answers than I personally feel we have at our disposal at the present time. The major question becomes then, can we so organize our relatively limited resources in the field of extension operational research, or evaluation, so that we can provide answers to all concerned, including ourselves, that we are using our resources most efficiently?

What then are some of these questions?

Are we directing our energies to the most important problems of our clientele as they view them or, conversely, are we doing those things which we think are most important irrespective of the dominant interests of our clientele?

Are we using the best and most efficient methods? Are we using methods attuned to current-day ability status of our clientele, or are we relying too heavily on methods developed in the early days of Extension when the average educational level was considerably lower than currently, and problems faced by farm people were considerably less complex than they are at the present time?

are we using methods that are geared to the needs and interests of our expanded audience? Can we use the same approach and the same methods with well-established farm families on the one hand and those farm or rural families on less than family-sized farms, part-time farmers and rural residents? How about methods which would effectively reach those engaged in the marketing of agricultural products wherein the average rate of increase in efficiency has lagged considerably behind the increase in efficiency of the average American farm?

Can we evolve any benefit-cost ratio type of measurement which we can use to prove to all concerned that money appropriated for financing extension work returns a benefit appreciably larger than the cost? Granting that this may be extremely difficult to do in as precise terms as are alleged to be applicable in certain other lines of endeavor, nevertheless in the last analysis, in one way or another, those responsible for maintaining appropriations to finance extension work face just that kind of a question. Related to this general question is the one of the size of staff required to provide necessary and justifiable extension services in a given set of circumstances. Where is the point of diminishing returns beyond which addition to staff would not be justifiable in the public interest?

We hear frequent references to the rather wide time-lag between the discovery through research or experience of a new technique or practice of great significance to agriculture, and the application of that practice by the majority of the farmers concerned. Are we continuously going to be faced with a situation wherein it can be charged that it takes 15 or 20 years to get farmers generally to adopt an improved practice of major significance to them and to the general public? Again this raises a question as to the efficiency of the methods which we have been using and extends a challenge to devise more efficient methods.

At the risk of repetition--can we determine through research, or through controlled experimentation, the types of methods that offer the greatest productivity in different sets of circumstances, such as clientele with differences in educational level, in income level, with different dominant interests, of different age groupings, and the like. Can we develop more tangible criteria that will provide constructive practical guidance to the average extension worker as he or she undertakes a program effort with some of these or other different characteristics?

Can extension operating research, or evaluation, or controlled experimentation--whatever you want to call it--provide us additional light on the kind of professional competence needed, both at the county level and in support of that county staff? Do we require a different kind of staff competence now to meet modern-day needs in contrast with the type of competence needed in the earlier days of Extension? Is it possible that we may be unconsciously leaning too heavily on procedures developed by the trial and error method in the earlier days of Extension which procedures may not be completely attuned to modern-day needs?

In this same connection can we through better organized evaluation determine the kind of staff training that is needed to make our total staff more efficient?

Can Extension's research or evaluation resources, limited as they are quantitatively, be dedicated effectively to developing a long-time consistent pattern of research which, as each part evolves, finds an appropriate place in a well thought-through mosaic pattern? I would make one observation here, hedging that observation with the argument that the portion of Extension's total resources which has been devoted to evaluation in the past has, in my judgment, been all too limited. That observation is that frequently we may have tended to dedicate our limited evaluation resources from time to time to items of current popular interest which may or may not have been potentially the most productive way to use these resources. Recognizing that there is a host of problems in a single State with relation to which more research or evaluation effort could profitably be directed, can we collectively develop an interchange of interests, and projected research or evaluation projects, so that we do get a set of experiences which will add up more effectively than is probable with a whole series of independently conceived studies?

Is it necessary for Extension itself to do all of the evaluation work which we may need? Is it possible for Extension to rely upon all other sources of research and experimentation in this general area, thus making it unnecessary for Extension itself to undertake certain types of research evaluation work? Are we on the alert for such "outside" research work which is applicable to our field of endeavor?

A final question that I would pose to you is whether or not those engaged in extension research or evaluation are good salesmen of their own wares? Are they successful in educating the rest of us in Extension on the meaning of and the utility of their findings? Are we sure that we are making effective use of that body of organized study which we have already been able to develop with respect to Extension's way of doing things, the problems they have met and overcome, and, not the least significant, those things which we have found to be not so successful as others?

I recognize that I have raised a whole series of questions for your consideration. How meaningful they may be for your deliberations this week I do not know, but I am convinced that we need to develop a larger concept of extension operating research or evaluation work. And I am equally convinced that we need to develop, better than we have to date, an organized plan for such types of activities in the future in order that, even though we do not operate as a straight line agency, each of us having the opportunity to do scientific work in this field will be making a definite contribution to a broad program of extension evaluation.

Those engaged in extension evaluation or operating research must of course by all means be scientific. We note a considerable portion of your time this week will be spent considering the characteristics of scientific research in this field.

But at the same time I would stress that research workers, if they are to be productive, are of necessity going to have to be imaginative, going to have to be dreamers of a kind. I plead with you as we all move forward in this field that we not be afraid to dream big dreams. I am firmly convinced that the Extension Service has lagged considerably in taking an organized introspective view of itself and in insuring that it has a pattern of operations which insures the greatest returns for the effort--the taxpayer's dollar--expended. May we all dedicate ourselves to devising a definite pattern for such introspective effort in the future so that, irrespective of the total quantity of resources that we can and should divert to this effort, we are assured that everything we do makes a definite and significant contribution to insuring that extension work is kept completely modernized and consistent with the demands of the current situation at any given time.

SHORTENING THE LAG-TIME BETWEEN RESEARCH FINDINGS AND THEIR GENERAL USE

B. T. Shaw, Administrator, AFS

We have quite a bit of fuzzy thinking as to how much unused information we have currently available. Perhaps I think it's fuzzy thinking because I find not too many people agree with me. As I have been studying the question I have come to the conclusion that we are not turning out research findings fast enough to keep up with the needs of the nation. We estimate currently that we should expand agricultural research in the United States by at least 100% as fast as we can do it. As I look at some other information we have, I wonder if that is right. We can grow 100 bushels per acre of corn in any State where it grows. At the same time our national average is something like 40 bushels per acre. Looking at those two figures it would seem to indicate that we have a whale of a lot of unused scientific information. Now look at the other side of the story. Crop yields in the United States have not increased since 1948 (7 years). Beginning in 1938, crop yields started going up--almost a steady trend "up" until 1948. The increase from 1938 to 1948 amounted to 40% per acre in crop yields. Since 1948 we haven't come up to 1948 yields. There are a lot of reasons why we haven't achieved the 1948 yield. Part of it has been due to weather. In many areas we have had drought, rust, etc. But it may be that the reason we have not increased yields is that we have used up available research information. In many cases farmers are using research as fast as results are obtained. We have had to grow two crops a year of new varieties to get enough seed to meet the demand of the farmer. Frequently, our scientists in the field of chemicals think new ideas are being picked up by the farmers faster than they should be.

When we get into other areas--like soil management--farmers are slower to adapt that which is new. There is a question in my mind as to whether we have a backlog of unused information. I believe we have a large number of farmers who are using our research results as fast as they are being developed. At the same time, other farmers are using only a few of the results. I think our problem is not only to get farmers to use our research results, but also to discover why it is that one farmer can use it as fast as we can get it out to him, while another does not use it at all. Our difficulty, in terms of giving this information to the farmer, is that we have been giving it to him in specific categories. We have left him with the hard job of integrating that information into a system on his farm. Both in research and in extension we have left the hardest part of this job up to the farmer in the past--trying to figure out a system that is best suited to his situation, to his managerial ability, etc.

I think this new approach you are taking in extension, of farm and home planning is exactly in the right direction to help solve the problems. Maybe we can help the farmer develop a system that will use more scientific information.

I hope some of us can figure out on a national basis just what is the status of our unused information. In the next 20 years in agriculture we must have as much improvement as we had the last 20 years; in other words, 40% improvement. We have to improve about as much in the next 20 years as we did the last 20 years. This seems like a "breeze" to many people.

About 1959-60 we will probably be in balance with production and supply--based on the assumption that crop yields will be about the same as they are now and my feeling is that they will stay about the same.

As I look ahead I think within a relatively short time--six or so years--the pressures are going to be put on extension research. We are fortunate that we have some backlog of information.

I would be hopeful that extension research can have answers to these questions; rather specifically as to what findings we have that are not being used--what groups of farmers are not using the new information and why.

One of our problems is better communication between scientific people. I think we are doing a fair job, between scientists, but we are falling down beyond that point--scientists communicating information to the extension leaders who are engaged in the job of translating that information to users.

We are now encountering difficulty in terms of communication between the scientists themselves. Scientists have become ever more specialized. There is need for better communication from agriculturist to agronomist, to animal husbandry and crops people, to those working on the breeding of new crops, and so on and on. We are going to become more specialized in the future and with this specialization we have developed a language jargon that only a few people can understand.

We are now in that stage where we have to develop new devices of better communications between scientists. What it will be I do not know. Maybe what we need to do is to publish only summaries of scientific articles; because I think you will find there are today probably only 20 to 100 people who need to read the full article. We could make the entire article available to those few and publish only the summary for others. It would require a different kind of summary than we have been putting in our current publications. It will have to get down to the meat of things. I don't know whether that is the answer or not, but something will have to be done to help the scientists keep up with what others are doing. I think that the scientists will have to do a better job in trying to translate their information to the other specialists who in turn will be able to make a second translation to the county agents and they in turn to the farmers. Actually, those on the research side have fallen down on this teamwork proposition. We have been too content in the past to publish findings and feel that our part of the job was finished. We haven't made it easy for the folks in extension to carry this story of the scientists to the farmers.

What we should do I don't know. We have experimented a little here in the Department. One thing we have been doing--and we aimed our work primarily to extension specialists--was to take a field of current interest and summarize and bring it up to date. We have prepared a number of reports. I don't know whether or not these are what you need. We are at the stage where we need your advice--to tell us what it is that would help you in translating this job of scientific information for the ultimate users. I think we can say that we are all willing to work and help out.

Generally, we recognize that we have not been living up to our responsibilities.

In summary--I do not know whether we have a backlog of scientific information or not. I hope you folks can find out. If you find that we do have, I would like to know where it is and where we in research can help you solve some of the problems in getting the information into use on the farms. I think we have to have answers to these questions before we can plan what is needed in either research or extension. We are saying we need to expand these programs 100%. If we have a big backlog of information, maybe we don't need to expand for a number of years. I hope you folks can figure out the answers and let us know what they are, and let us know how we can help you in any way.

DEVELOPING A PROGRAM TO PROVIDE MORE EFFECTIVE ASSISTANCE
FOR LOW-INCOME FARM PEOPLE

Don Paarlberg, Assistant to the Secretary

- I. There is a sizeable section of agriculture inadequately served by farm programs.
 - A. One fourth of our farm families receive less than \$1,000 annual income.
 - B. Most farm programs serve mainly those farmers who are at the upper end of the income scale.
 - C. The low income problem is concentrated in the southeast, with scattered areas in the west, north, and northwest.
- II. Causes of low income are complex.
 - A. Major cause is the high rural birthrate and the reduction in the number of farms needed to produce our needs of food and fiber, which causes a piling up of people on the land.
 - B. Associated causes are poor education, poor health and resulting apathy.
- III. The recent study of this problem may be thus characterized:
 - A. The study was done within this framework of attitudes:
 - 1. Goals are those to which the people themselves aspire.
 - 2. Program is cooperative at all levels of government.
 - 3. Program is cooperative within agencies.
 - 4. Accent is on youth.
 - 5. Both agricultural opportunities and off-farm employment are considered.
 - 6. Program will start small and expand on the basis of experience.
 - B. The program recommended by the Secretary for launching during this year and headed by Under Secretary Morse would have these features:
 - 1. It might be called a "Rural Development Program."
 - 2. Pilot operations would begin in 50 of the 1,000 low income counties.
 - 3. Research would be aimed at the particular needs of these people.
 - 4. Extension Service would expand the farm unit approach.
 - 5. Technical help would be supplied by other agencies, such as Soil Conservation Service and Forest Service.
 - 6. Farmers Home Administration would provide credit.
 - 7. Employment information would be provided through the Employment Service.
 - 8. Vocational training, agricultural and nonagricultural, would be increased.
 - 9. Programs of industrialization would be promoted.

IV. Progress has already been made along these lines.

- A. Improvements have occurred in the fields of health, education, social security, industrialization, credit, farm enlargement and other adjustments, part-time farming, nonfarm employment, rural electrification.
- B. What is needed is to coordinate these activities and expedite wholesome adjustments that are already under way.

WHAT DO WE MEAN - EXTENSION RESEARCH?

Meredith C. Wilson
Director, Division of Extension Research and Training

To those accustomed to hearing the functions of the Land-Grant Colleges described as resident teaching, research, and extension, the expression "Extension research" has all the earmarks of a contradiction. It is almost like referring to a black Chester-White hog or to a white Rhode Island Red chicken.

However, names which at first strike one as contradictory or misleading may be accurately descriptive. For example, I am informed that it is possible to purchase a white redbud tree from certain nurseries. And the tree is just what the name implies, a white blossom form of a tree which is very red in color and most conspicuous in wooded areas about Washington in the early spring.

It was largely because of the feeling that the name "extension research" might create the impression that extension funds were being utilized to finance subject-matter research in agriculture and home economics, that the terms "field studies" and "extension studies" have been used these many years to designate efforts to utilize scientific research procedures to solve extension problems.

Just why the term "extension research" was substituted for "extension studies" in the title of an established major organization unit of the Federal Extension Service, I do not know. There were probably some scientists on the reorganization committee of 1953 who insisted upon the accurate use of terminology. Be that as it may, we have been operating under the "Extension research and training" label for 20 months or more. So far as I am aware, not a single question relative to the appropriateness of the term "extension research" has come up in the United States Department of Agriculture or elsewhere in Washington, D. C., and to date only one State Director of Extension has reported that the term "extension research" was causing any concern on the part of members of the staff of his institution.

If we reverse the order of the words "extension" and "research" and insert a preposition, confusion quickly disappears. Research in extension suggests the application of the fact-finding or scientific approach to problems connected with the conduct of extension teaching and the operations of the cooperative extension system. Research in extension has the same meaning for those engaged in extension education, that educational research has for those who follow classroom teaching as a profession. Extension research means research in extension education in exactly the same way that poultry research or soils research means the application of the scientific approach to those subject-matter fields.

WHY - research in extension?

That the modern high efficiency of agriculture in the United States is the result of the development and organization of scientific research is generally accepted. There can be no doubt but that scientific research can be equally effective in improving the organization and conduct of extension

in its many aspects. The field studies which have been made during the past 30 years have clearly demonstrated the potentialities. But extension to date has neglected to provide the specialized staff appropriately trained and of sufficient size to conduct an extension research program commensurate with extension's needs. The current situation was well summarized by Associate Director H. L. Ahlgren of Wisconsin, in a paper presented at the Land-Grant College meetings in November 1954. I quote, "Research can also be used by the Cooperative Extension Service as the master to provide basic facts needed for self-improvement and greater effectiveness. In general, our various programs have 'grown like Topsy' and the scientific method has not been applied along the way. To date we have made little use of research as the master to provide guidance and light along the way. We cannot delay much longer the initiation of new studies or the expansion of studies now underway that will provide the answers or point the way to the solution of some of the problems in administration, supervision, program planning and execution, communication, group dynamics, human relations, and many others with which we are now confronted. (I am not proposing that we undertake such a research program ourselves. It seems to me that to be most effective it should be done by the State Experiment Stations, in cooperation with the State and Federal Extension Services.) I am convinced, however, that in skillful and understanding hands, research can be made to serve just as effectively as master in planning and executing our various programs and in guiding our course, as it has as servant in providing the educational material on which our current programs of work are based."

In quoting Director Ahlgren I purposely omitted his comments on who should do the extension research. Just what the cooperative arrangements between the Cooperative Extension Service, State Experiment Stations, and Agricultural Research Service should be I am willing to leave to extension administrators. The all-important point here is that the cooperative extension system can no longer afford to deny itself an adequate modern research service. "The 'live' Government Agency is one which is actively studying its own functions and problems; and this is research." The same document /1 from which the preceding is quoted defines scientific research as follows:

"Research may be defined as any investigation, survey, or study tending to correct, verify, or add to knowledge in general or in specific fields. The components of the research process are the collection of facts and generalizations from these facts. Research broadly defined may, therefore, be said to include:

- (a) The collection and tabulation in available form of factual data from which generalizations may be made, or by means of which previously formulated hypotheses may be tested; and
- (b) Comparison, analysis, or evaluation by experimental or other methods, of data, materials, or concepts."

/1 Discursive outline of a project on Governmental Relations and Research - 4th Draft. National Resources Committee - Stuart A. Rice, September 6, 1937.

WHAT - in extension research?

Classification of the kinds of research which may be carried on in extension will help us all to sharpen our concepts of what constitutes research in extension.

In terms of purpose, research in extension is conducted:

- (1) To determine the status, past or present, of any extension fact or event; i. e., program, teaching methods, or other phenomena.
- (2) To ascertain the nature, composition and process that characterize that fact or event.
- (3) To trace growth, change, or development history of any fact or event.
- (4) To study cause and effect relationship.

Classification of extension research by area or content is, of course, a necessary approach to administrative organization. It is also basic to an orderly division of responsibility where a number of people are engaged in extension research in a given Agency. In the recent reorganization of the Division of Extension Research and Training, much thought was given to this matter. Analyses made by several staff members working independently yielded essentially the same answers. In terms of content extension research can be divided into three reasonably discrete areas:

- (1) Research related to program progress and accomplishment comprises one such logical grouping. This research area includes studies of the effectiveness of extension teaching of agricultural and home economics subject matter to men, women, and youth; to farm, rural nonfarm, and urban people. It deals with the program planning process, reasons for nonadoption of recommended practices, clientele coverage, why boys and girls drop out of club work. Evaluation of progress in bringing to the individual farm and family unit the extension information which contributes to the advancement of family goals would clearly seem to belong with this group since it is largely a matter of program integration. The Program Research Branch has the responsibility for promoting research in this general area.
- (2) The second category of studies under this classification scheme has to do with teaching methods - individual, group, and mass media; their inherent characteristics, strengths and weaknesses; their suitability for particular jobs; their interrelationship, how improved, etc. Research in the indirect spread of extension information from neighbor to neighbor and the teaching through extension local leaders are included in this group. Exploratory research to determine the teaching method or combination of methods which will effectively reach low-income farm families and other hard-to-reach segments of the extension clientele is also lodged with the Teaching Methods Research Branch.

- (3) Left for a third substantial group are all the studies which have to do with the organization and operation of the Cooperative Extension System itself. Included here are studies of organizational structures, functions of staff groups, administrative and supervisory procedures. Experimental work to improve reports and reporting procedures is also included here.

In the present organizational pattern of the Division of Extension Research and Training, research in this area is not assigned to a branch but is handled out of the Director's office and by various members of the program evaluation and teaching methods branches on a catch-as-catch-can basis.

Degree of complexity has been suggested as a third way of classifying research in extension. A scale arranged as follows might be used:

[illegible]

At the extreme left would be grouped simple evaluations, which are little more than attempts to apply the scientific approach to an extension problem. These small evaluations are exceedingly worthwhile, but probably contribute more to personnel training than to the building of a scientific body of information for use in improving the conduct of extension.

Not far from the extreme left we would place small studies of a somewhat formal nature. Grouped around the middle of the scale and moving off toward the right would be studies of the effectiveness of specific extension programs. Relative influence and cost studies of teaching methods would be well to the right of the center of the scale. Studies which might be placed at the extreme right end of the scale are very few in number at this stage of the development of extension research. Money and personnel have not been available to do this more expensive type of research.

There are many problems in extension which require the experimental or pilot-project approach. Long-time studies of the effectiveness of the farm and home unit approach are of such a nature.

Future research in extension.

With more personnel and other resources available for research in extension, it should be possible to plan more comprehensive, longer-time studies, adequately designed and executed to provide answers or partial answers to extension's many problems. If extension research is to find answers to some of those questions raised by Mr. Kepner, Dr. Shaw and Dr. Paarlberg this morning, we shall need to move in the direction of both more and better research in extension.

Summary

In closing I would again emphasize that extension research means the application of the scientific method to the solution of extension's problems. Research is not something to be limited to specific subject matter fields or to certain departments or establishments. It should be conducted by all agencies and in all fields of endeavor. It is obligatory upon the Cooperative Extension Service, now an enterprise with an annual budget of more than a hundred million dollars, to utilize fully the scientific approach in improving its operating efficiency.

RESEARCH DESIGN AND ANALYSES

Topical outline of a discussion on research design and analyses.

Wylie D. Goodsell,
Head, Costs and Returns, Production
Economics Branch, ARS.

A. Problem clearly defined.

Think through every detail of the process before you design the experiment.

1. Exactly what is the objective?
 - a. What am I trying to do?
 - b. How will I do it?
 - c. What are the physical and financial limitations?
 - d. How much time is involved?
 - e. What is the probable outcome?
 - f. Will the findings be worth the cost?
2. Prior research.

Consider carefully the work of similar character done by others. Make careful note of the methods used, findings both negative and positive, and data that might be useful in your problem.

 - a. What similar work has been done?
 - b. What data are at hand:
 1. To aid in designing, in describing the universe and in sampling?
 2. That will supplement or contribute directly in my analyses?

B. Formulation of working hypothesis.

1. What are the questions to be answered?

C. Selection of most appropriate method of obtaining evidence.

1. Case studies.
2. Experimental approach.
3. Sample surveys.
4. Historical.
5. Combination.
 - a. Advantages and disadvantages of each.

D. Sampling problem and design.

1. Sample to be representative.

a. Equal probability for each observation to be included.

1. Conclusions must be applicable to universe. Use standard sampling procedures so that the survey can be repeated at a later date with equal representation. In this way historical series can be developed and continuity or comparisons can be made.

E. Design of sample.

1. Stratification (Example: Laying of flocks).

- a. Geographically.
- b. Breed of flock.
- c. Size of flock.
- d. Those feeding and those not feeding certain hormones and antibiotics.
- e. Other management practices.
- f. Age and type of operator.

F. Editing of data

1. Exercise of judgment.

- a. Example -- eliminate incomplete items.
Complete for mortality but incomplete for lay.
- b. Use of statistics for missing data.

G. Statistics.

1. Mean.
2. Median.
3. Mode.
4. Class interval.
5. Correlation.
6. Regression.

7. Statistical significance.
8. Practical significance.
9. Paired samples -- identicals.

Characteristics of each of the statistics and methods of comparison.

H. Analyses and interpretation.

1. Time sequence.
2. Cause and effect.
3. Conclusions in agreement with data and with common sense.

SAMPLE SURVEY TECHNIQUES

J. Richard Grant
Acting Statistical Clearance Officer, AMS

For a number of years our office has worked closely with your Federal Extension "Research and Training" staff in designing sample surveys. Sometimes those of you who are stationed in field offices that are faced with the work of carrying out survey operations according to certain prescribed procedures may wonder what goes on back here in Washington and what the basis for such procedures may be. This workshop, it seems to me, presents a good opportunity for us to understand each other's problems better. I should like to outline a few of the basic principles and techniques that we follow in designing sample surveys. I hope that you will raise questions which you may have regarding problems you have encountered in field survey operations.

As background information, before presenting some of the sample survey techniques which may be applicable to extension studies, I should like to outline briefly a few essential points in the proper planning of statistical surveys. Sometimes, in placing so much emphasis on proper sample design for a survey, some of the other important steps tend to be overlooked. Generally, in designing a survey there needs to be an economic balancing between sampling errors and response errors or biases. Response errors, resulting from failure to understand questions, inability on the part of respondents to provide accurate information, poor interviewing, memory failure, etc., frequently are large enough to invalidate the data obtained. A simple example may help to give a clearer idea of these components of error. "Suppose one is firing a gun, which is held in a vise, at a target and after firing a number of times finds the shots widely scattered and consistently above the bull's eye. The amount of scatter of the shots about the center of the pattern corresponds to sampling error, and the distance from the center of the pattern to the bull's eye corresponds to the bias. Now the bias may be the result of the gun being aimed too high, and the scatter of the shots may be due partly to flaws in the gun and partly to its not being held firmly in the vise." ^{1/} For a few minutes then, let's get back to the beginning and consider the various steps which need to be considered in making a good survey.

Some Essential Points in Planning a Statistical Survey

(1) Surveys are generally associated with providing answers to some problem--providing data to be used as a basis for necessary action. The first essential, therefore, is to define the problem carefully. To put it in the words of a statistics professor I once had, "What is bothering you?"

(2) Next, a clear statement of objectives should be prepared so that all information requested may be directed toward fulfilling the objectives.

^{1/} From a paper on crop reporting procedure by S. L. Crump entitled "A Test of Sampling Error and Bias in Mailed Inquiry Samples," Agricultural Estimates Division, A.M.S., USDA.

(3) The scope of survey operations should be kept within the limitations of personnel and resources of the sponsor.

(4) Tabulation plans should be clearly in mind, and prepared, at least in rough form, as one of the beginning steps. This is helpful in survey design as a determinant of coverage needed; e. g., whether a summary for an entire State is adequate, or whether tabulations by smaller geographic areas will be required; or whether additional breaks, such as income, type of farm, farm vs. nonfarm, etc., are needed.

(5) The survey should be designed to provide adequate information in the easiest, quickest, and most economical manner. The respondent group should be sampled rather than covered completely if sufficiently reliable results, consistent with tabulation plans, can be obtained. The method of collecting data, i.e., by personal interview, mail, telephone, or some combination, should be adequate to satisfy objectives at a minimum cost.

(6) Estimates should be made of total costs for the survey, including allowance for preliminary planning, survey design, pretesting questionnaire and operations, training of supervisors and interviewers, data collection, editing, coding, tabulation, analysis, and preparation of the report.

(7) A time schedule or calendar should be prepared for each step in the survey process to assure availability of results when needed.

(8) The questionnaire should be prepared according to recognized standards. The size and design of the questionnaire should be chosen with a view toward convenience of respondents (particularly in the case of mailed questionnaires), and adaptability to processing results. Language should be simple and concise, in terms the respondent can understand. The questionnaire should be "pretested," or tried out on small representative groups of respondents, to determine whether information needed to satisfy survey objectives will be obtained, whether operating procedures are effective, whether questions are understood, to evaluate the length of the questionnaire, and to ascertain response rates. To insure uniform questioning by interviewers, we have found that it is best to word questions so that they can be asked as stated in the questionnaire. Otherwise, variations in wording of questions by different interviewers invite varying interpretations by respondents.

(9) For interview surveys, appropriate provision should be made for training and supervising interviewers.

(10) Plans should include adequate facilities for processing data and analyzing results.

"Probability" vs. "Judgment" Sampling.

Sampling methods are frequently divided into two general classes. One of the classes has become widely known as "probability" sampling. Deming ^{1/} defines such samples as those "for which sampling errors can be

^{1/} Deming, W. E. "Some Theory of Sampling." John Wiley and Sons, 1950

calculated and for which the biases of selection, nonresponse, and estimation are virtually eliminated or contained within known limits." These samples are selected in such a way that each element in the universe (the entire number of elements with which a study is concerned) has a known probability, greater than zero, of being selected. A second class includes all other kinds of sampling, sometimes called "judgment" or "purposive" sampling. This procedure involves selection of so-called typical sampling units or those which are representative with respect to known characteristics of the population. This approach to sampling may be useful where it is necessary to limit the sample to a small number of units. Such a judgment sample, covering a few selected units, may provide more representative data--or results closer to the true population mean--than if chance were allowed to operate, although there is no theoretical basis for calculating sampling errors to determine the accuracy of results of judgment sampling. As the sample size is increased, the accuracy of probability sampling becomes greater than judgment sampling.

In a class experiment at Iowa State College in 1950, Jessen ^{1/} displayed a collection of 126 stones of various sizes and shapes. Members of the class were asked to look at the display and then pick out samples which in their judgment accurately represented the average weight of all stones. Several sizes of samples were specified; each member chose judgment samples of 1, 2, 5, 10, and 20 stones. Comparison of results with those obtained from selecting stones at random by the use of random numbers shows very interesting results. As a measure of accuracy the deviations of each sample of a given size from the true population mean (98.4 grams) were averaged and the results are shown below:

Size of sample:	1	2	5	10	20
Mean deviation, judgment samples:	42.0	44.9	35.3	38.5	31.0
Mean deviation, random samples	80.6	71.4	41.3	34.1	26.2

In this experiment the judgment selection was more precise for samples of 1, 2, and 5, but random selection proved better for the larger samples. If the samples must be extremely small, and there is considerable variation in the items being observed, a specialist who is quite familiar with the population characteristics may be justified in selecting the items on the basis of judgment. The limited value of results must be kept in mind, however, since ordinarily a measure of accuracy would not be available in samples based on judgment selection.

Extension Service sample surveys are generally conducted in selected counties within which cross-section samples of farms or households are drawn. In such studies the counties are usually selected on a judgment basis; i. e., selection of counties that are typical of particular types of farming area or geographic regions, but within-county sampling is done on a probability basis. In order to select a probability sample the universe must be carefully defined; i.e., determine whether the study is concerned with all households in the selected counties, only farm households, or only homemakers, etc. A sample of the elements in the universe is selected with known probabilities so as to permit expansion of the sample

^{1/} Jessen, R. J., Lectures on Statistics (unpublished) at Iowa State College, Ames, Iowa

results to estimate universe totals or averages. Results from such studies in "typical" counties are, of course, representative only of the county or counties included in the survey.

Statistical efficiency of a sample is generally increased if sampling units can be stratified according to relatively homogeneous groups; e.g., geographic areas, type of farming, size of farm. The greatest gain in efficiency is made when the variability between strata is large and that within strata is small. The basic principle to keep in mind in stratification is to use all of the judgment possible in delineating the strata, but to leave completely to chance the selection of sampling units within strata. Professor Snedecor used to say, in instructing his statistics classes regarding the drawing of repeated random samples of beans from a bag, "Don't get too familiar with the beans!"

Size of Sample

One of the first questions usually asked of a sampling statistician in discussing sample survey plans is, "How large a sample do I need?" But first you need answers to a number of other questions, such as: What tabulation breaks or classifications of data are to be made? What kind of variation exists in the population being sampled? What accuracy is needed? Another consideration that is usually a limiting factor is the amount of money available. Generally, the problem is one of establishing a set of objectives and a survey design that are integrated to provide a maximum amount of information for the available funds.

It does not make sense to spend too much on reducing sampling errors, say from 10% to 5%, if nonsampling errors or biases are higher. It should be kept in mind that reduction of sampling error by increased sample size alone requires quadrupling the sample in order to cut the sampling error in half. The principle usually followed is to design a sample just large enough to hold the sampling error at a satisfactory level, then emphasize every effort to minimize nonsampling error. 1/

Area Sampling vs. List Sampling

One kind of within-county sampling frequently used is called area sampling, a form of probability selection in which small areas of land that include clusters of farms or households are used as the units for sampling. The entire area to be included in a study, e.g., a county or town, is subdivided into small area segments that have identifiable boundaries. A selection of these segments on some random or systematic basis provides the probability area sample.

Another method of probability sampling frequently used is "list" sampling. If a good list of farms or households is available, it may provide a better basis for sampling than area sampling. A list sample provides a better scatter of the farms or households being studied, and is, therefore, more efficient statistically than a sample which clusters the units of observation into areas. This is based on the fact that units adjacent to each other tend to be more similar than those which are scattered. Special

1/ Houseman, E. E., "Design of Samples for Surveys," Agricultural Economics Research, Vol. 1, No. 1, USDA, January 1949.

care needs to be taken, however, regarding use lists for sampling. Frequently they are found to be incomplete. A further consideration in deciding whether to use area sampling vs. list sampling is that greater difficulty and travel costs may be experienced in locating persons from a list sample.

Much has been written about the cooperative project of the BAE, Bureau of the Census, and the Iowa State College Statistical Laboratory for the development of a national area sample, popularly called the "Master Sample of Agriculture." 1/ It is frequently an overlooked fact that this project not only provided a national sample of small area segments, covering about 6 percent of the farms, but also developed a set of materials that could be used in any part of the country for additional sampling work as needed. The description of these materials and their adaptation to special cases is fully described in a bulletin recently published by the Agricultural Marketing Service. 2/

County highway maps, showing cities, towns, roads, etc., as well as location of farmsteads and other dwellings, were assembled for all counties in the United States. On these maps, minor civil divisions, incorporated places, and densely populated incorporated places were delineated. The area remaining, after delineation of incorporated and unincorporated places, was called "open country." In the "open country" counts of farms and dwellings were made and recorded for areas called "counting units." The counting units were numbered in serpentine manner, beginning in the north-east corner of each minor civil division. These areas generally contained not less than 6 farms or 8 dwellings, nor more than about 30 farms. Each counting unit was assigned a given number of sampling units based on the number of farms and dwellings. The intent was to limit the average sampling unit to between 4 and 6 farms, and not more than 10 total dwellings. This was based on previous research designed to find the most efficient size of segment, and the resulting decision was a balance between smaller areas which are statistically more efficient and larger areas which are less costly and have fewer problems of boundary identification. The limitation on nonfarm dwellings was provided so that the sample would be usable for inquiries dealing mainly with elements other than farms. Given the basis for delineation of the entire county into sampling units, it becomes a fairly simple process of selection of the number of segments needed for any particular sample. This is accomplished by making an accumulated listing of the sampling units assigned to each counting unit and, beginning with a random starting point, selecting the required number of sampling units in a systematic random manner. More specifically, the selection of a given sample segment from the cumulative listing locates the counting unit from which the sample segment is to be chosen. If the counting unit has been assigned two or more sample segments, it must be subdivided into the number of segments assigned and one is chosen at random.

1/ King, A. J., and Jessen, R. J. "The Master Sample of Agriculture," Journal of the American Statistical Association, Vol. 40, No. 229, March 1945.

2/ Houseman, E. E., and Reed, T. J., "Application of Probability Area Sampling to Farm Surveys," Agricultural Handbook No. 67, USDA, L.S. May 1954.

Within-City Sampling

The procedure for drawing samples of farms or dwellings in the incorporated area segments samples and unincorporated areas is based on the same general principles as followed in the open country. Usually the county highway maps contain insets showing the complete detail of houses and farms for the densely populated places, in which cases it is possible to subdivide the areas into the desired number of segments. In some cases where no details are provided it is possible to obtain aerial photographs to obtain the needed detail for selection of a sample.

Procedures vary, depending on the percentage of households expected to qualify, and the effect of clustering; i.e., the extent to which households adjacent or near to each other tend to be similar with respect to the items of information for which data are needed. First, let us take an example of a sample survey in which most households would qualify -- a situation in which one might expect the effect of clustering to be large. The procedure would be to select a cross-section sample of blocks and subsample households within blocks as follows:

- (1) Refer to the Census Block Statistics Bulletin which shows, for cities of 50,000 and over, the number of dwelling units for each block in the city. It also provides basic information for stratification purposes, such as average rent value of dwelling units; number of dwelling units occupied by white and nonwhite, etc.
- (2) If stratification is used, block data are classified according to strata desired.
- (3) The overall sampling rate is determined by dividing the number of households wanted in the sample by the number of households in the city. The sampling rate may be arbitrarily increased to allow for the fact that interviews cannot be obtained from all eligible households; e.g., if a minimum of 400 interviews are needed, the number of sample households might be set at 500.
- (4) Suppose there are 50,000 households in the city. The overall sampling rate is 1 in 100. To avoid the effect of clustering, we want to sample households within blocks, so a decision is made to take no more than 3 households per block. For a sample of 500, a sample of about 167 blocks is needed.
- (5) $\frac{50,000}{167} = \text{approx. } 300$ (the interval for selection of blocks).
- (6) Blocks are selected with probabilities proportional to the number of dwelling units in the block. The dwelling units are accumulated in each stratum, block by block. Then, by selecting a random number between 1 and 300--suppose it is 84--the sample blocks would be those blocks which contained the 84th, 384th, 684th, etc., households in the cumulative total of households.

(7) To select the three households within the sample blocks, there are several alternatives:

- (a) Prelist households within the block and provide a random procedure for selecting the three households.
- (b) Give a starting point in the block; e.g., a specified corner, and tell interviewers to take specific households away from this point.
- (c) Use Sanborn maps which show house locations within city blocks.

The procedure for surveys in which only a small percentage of households qualify and effect of clustering is small would be modified to consider the entire block as the sampling unit or cluster. The size of the sampling unit could be controlled by considering blocks with from 5 to 50 dwelling units as one sampling unit. Blocks with more than 50 dwelling units would be assigned one sampling unit for each 50 dwelling units, and blocks with less than 5 dwelling units would be combined with adjacent blocks. The sample of blocks would be chosen, as before, by accumulating sampling units and taking the block in which every n th sampling unit falls. The blocks containing more than one sampling unit could be divided by Sanborn maps.

In small cities and towns where block statistics or Sanborn maps may not be available, aerial photos may be obtained to provide the basis for block selection. If a list of households is available, such as a city directory, this may be used for selecting a sample if one feels that it is sufficiently accurate not to bias survey results seriously. The sample of households could be selected from this listing by taking every n th household or every n th cluster of households. Since the directories list the streets in numerical and alphabetical order one usually obtains some geographical dispersion.

I hope that this discussion of sampling principles and techniques has given you a better appreciation for the problems which a sampler faces. Our office stands ready to assist, to the extent of our facilities, with your survey plans and sample designs in any way that we can.

APPROACH IN EXTENSION RESEARCH?

G. L. Burrows
Statistical Consultant, AFS

The subject of this discussion is: The experimental design and the pilot-project approach in extension research. On Monday we had answered for us "What do we mean - extension research?" and also, "What constitutes good research design?" Tuesday morning we had an example of an experimental program carried out in Michigan and that afternoon Group D went to work on the use of pilot-projects in developing methods effective with special problem groups. Now permit me to insert just one word in the title of our topic for this afternoon: Why the experimental design and the pilot-project approach in extension research? Now that's good for a few after-dinner remarks any day; so, since it's becoming fashionable nowadays to make your after-dinner remarks before dinner, let's do it.

In looking over your program for this week and listening to a number of the speakers, I tried to select the one main theme of the workshop. True, the name involves research . . . extension research . . . but what aspect of research? Some workshops are directed toward introducing new research techniques, others at how to use techniques, still others at how to evaluate techniques. Your program thus far has been largely one of evaluation, as exemplified by the efforts of at least 4 of your 6 work-groups in measuring effectiveness, progress evaluation, program accomplishment. In a sense, the function of every workshop is critical evaluation, and that is as it should be. Yet I wonder if there is not more than the usual effort here. I wonder also whether the reason may not be apparent. The introduction of any new research technique is usually accompanied by an examination of the old well-established techniques with defense and criticism, followed by a period of trial and testing for the new, and finally an evaluation.

The farm and home unit approach was not entirely unknown to me as I sat down, pen in hand, to collect my thoughts on the subject under discussion here today. But it is, I think, not sufficiently well enough established as a procedure in extension work to have undergone critical evaluation. Rather, it is just about due for it. This is the natural cause for your emphasis upon evaluation. There is, however, another reason, I believe. We are currently experiencing an era of widespread critical examination of our decision-making processes. Business management, the Department of Defense and other Government agencies, researchers, and even we as individuals are being exhorted to challenge the bases upon which our decisions are being made. Books like Wald's Statistical Decision Theory, Gross' Design for Decision and the collective work Decision Processes, though admittedly statistical books, are having their impact by establishing the decision-making process as a science. Mr. Wilson emphasized the need for a more scientific approach in extension research. But what is the scientific approach? Why is it to be desired if not because it provides a sound decision-making basis?

Robert Boyle back in 1673, commenting on the unsuccessfulness of experiments (and I think we may safely infer of all research), wrote thus: "I am sorry, Pyrophilus, that . . . you will find many of the experiments published by authors, or related to you by the persons you converse with, false and unsuccessful, you will meet with several observations and experiments which, though communicated for true by candid authors or undis-trusted eye-witnesses, or perhaps recommended by your own experience, may upon further trial, disappoint your expectation" 1/

And writing about 100 years later, Lavoisier in 1787, commented that, "The only means of preventing these inconsistencies is to suppress, or at least to simplify, as much as possible our subjective reasoning, which alone can bewilder us, to subject it constantly to proof by experimentation, retaining only the facts that are truths given by nature and that cannot deceive us; seek the truth only in the sequence of experimental observations, particularly in the order in which they occur, just as a mathematician arrives at a solution to a problem by starting with what is given and proceeding by reducing the reasoning process to operations so simple and the conclusions so succinct that he never loses sight of the justifying evidence." 2/

I have deliberately chosen to translate Lavoisier's choice of word "l'experience" as experimentation rather than as experience, and took the precaution of checking the translation with a couple of reputable French-English dictionaries. You heard on Monday a plea for the use of judgment in interpreting research findings, and I echo that plea. But if good judgment is born of experience (and I think we all agree that it is) so also must relevant experience be based upon experimentation. As Fisher puts it, "Experimental observations are only experience carefully planned in advance, and designed to form a secure basis of new knowledge" 3/ I quote a bit further from Fisher: "When any conclusion is supposed to be proved on experimental evidence, critics who still refuse to accept the conclusion are accustomed to take one of two lines of attack. They may claim that the interpretation of the experiment is faulty, that the results reported are not in fact those which should have been expected had the conclusion drawn been justified, or that they might equally well have arisen had the conclusion drawn been false. . . . The questions involved here can be dissociated from all that is strictly technical in the statistician's craft, and, when so detached, are questions only of the right use of human reasoning powers, with which all intelligent people, who hope to be intelligible, are equally concerned. . . . The other type of criticism to which experimental results are exposed is that the experiment itself was ill-designed, or, of course, badly executed.

"Now the essential point is that the two sorts of criticism . . . are aimed only at different aspects of the same whole If the design of an experiment is faulty, any method of interpretation which makes it out to

1/ Robert Boyle, 1673, Concerning the Unsuccessfulness of Experiments.

2/ A free translation from Methode de Nomenclature Chimique, by A. L. Lavoisier. 1787.

3/ R. A. Fisher, The Design of Experiments, 3rd ed. p8.

be decisive must be faulty too. It is true that there are a great many experimental procedures which are well designed in that they may lead to decisive conclusions, but on other occasions may fail to do so; in such cases, if decisive conclusions are in fact drawn when they are unjustified, we may say that the fault is wholly in the interpretation, not in the design. Statistical procedure and experimental design are only two different aspects of the same whole, and that whole comprises all the logical requirements of the complete process of adding to natural knowledge by experimentation." 1/

I believe that one of the vital decisions to be made in planning any research is to decide whether we want to describe what has been done, or to try out or to demonstrate what can be made to occur? Proper design of an experiment can be discussed only after we come to appreciate the need for an experiment.

We are told by Kempthorne that "The real distinction between two of the applications of statistics, the design of experiments and sample surveys, is that, in the design of experiments applied to a problem, the populations that are studied are formed by the experimenter in a specified way, whereas, in a sample survey dealing with the same problem, the population under study has arisen from a set of forces, the relation of which, to the forces under consideration, is unknown. A survey of a population tells us only about the objects observed and with suitable sampling schemes can tell us about a population of objects. It can demonstrate the existence of associations between characteristics in the population All science is eventually concerned with the problem of how to make particular attributes of a population take on certain desired values. The existence of an association between attributes X and Y in the population in no way suggests that attribute X can be altered to a specified value by altering attribute Y in a particular way. In an experiment we determine whether altering attribute X has an effect on attribute Y, and this is the knowledge that is necessary for any action program." 2/

If you're looking for more scientific methods of research, the direction you must take is clear, I think. The secret of the scientific approach was in Lavoisier's comment. The chief characteristic of the scientific method is not that it is usually right but that it is usually reproducible. The strength of scientific inference is largely upon the evidence rather than upon the judgment of the interpreter. The deductions are kept so within the bounds of the evidence that most intelligent people can agree upon their reliability. This is not to say that judgment and imagination are not at a premium in scientific research; they are. But they are only the source, not the evidence of scientific findings.

1/ R. A. Fisher, op. cit. pl.

2/ O. Kempthorne, The Design and Analysis of Experiments, p7.

In view of Mr. Grant's discussion of sample survey techniques earlier this morning, I call upon you not to go away with the impression that I consider the survey approach unscientific. Quite the contrary! In fact, the survey technique, as many of you may well know, is a tool that is best handled by the scientific sampling experts despite the lucid but perhaps deceptively simple explanation that Mr. Grant has given us here today. Surveys have their place in extension research; they are the means by which we establish the benchmarks that Messrs. Gray, Wilkening and others have established as an integral part of the farm and home unit approach.

Compared with the gigantic problem of establishing the necessary criteria by which to measure progress of the farm and home unit approach the problem of choosing among the possible experimental designs, or between them and the pilot-project, is trivial. Both the experimental and pilot approaches are demonstration methods as is the whole farm and home unit approach, as I see it. I am not at all sure that there are in existence standard experimental procedures that are wholly suited to your problems; certainly there are none whose standard methods of analysis will not be challenged. It is for this reason that I have chosen to speak on the experimental approach rather than about specific choices of methods. Your efforts appear to be in the direction of more scientific methods, but much yet remains to be done, particularly in two directions:

- (1) Agreement upon criteria that measure progress.
- (2) Methods of analysis that will synthesize the results of interacting farm practices as well as recognize and incorporate valid adjustments for the inequality of the initial benchmark situations of the cooperating farm and home units.

EXPERIMENTAL DESIGN AND THE PILOT-PROJECT
APPROACH IN EXTENSION RESEARCH - A SYMPOSIUM

Chairman Beal:

So far we have discussed some of the principles behind sound and useful research. We approach, now, the choice of how these principles can be applied. What could be the design of experiments and what is the place of the pilot-project approach

The chairman of a session such as this usually approaches his assignment with hesitation, even fear. I have no such qualms with the backing that this group can give.

We are going to start with some comments from Mr. Burrows, whom you heard this morning. Mr. Burrows--

Burrows:

Having given you my prepared presentation perhaps we can turn to the panel discussion. First, may I give you an example that may help to tie in with what Mr. Grant told you a little earlier. I have at home a walnut box filled with beads that I use in teaching a course in sampling theory.

When there are only 15 red beads but 1,500 white beads in the box and they are thoroughly mixed you can hardly see the red beads if you look in the top of the box. You might see one, or you might see a couple. Dipping in with a paddle containing 50 depressions yields for the most part samples that contain all white beads. Occasionally, one comes out with a red or even several red beads.

I have two points to make, using the box by way of illustration. The first is this: In any research endeavor you pretty well insure the kind of answers you are going to get by the questions you ask. In sampling from the box we may have two motives in mind: (1) To ascertain, on the basis of the samples, what is the proportion of red and white beads, or (2) to demonstrate that samples taken from the box can, in fact, reveal the proportional contents of the box. I want to set the theme of the present discussion in terms of these two alternative approaches to research problems, namely, the survey approach and the experimental approach. Sampling from the box to learn its contents is a survey; sampling to demonstrate that such a procedure does, in fact, provide a sound basis for estimating the contents in an experiment.

In my class demonstrations using the box we draw a number of samples from the box containing 15 whites among 1,500 reds; then, with the cover up to my audience to hide my sleight of hand, I take advantage of their preoccupation with the calculation of means and variances to dump into the box an extra handful of red beads. We continue to sample without their knowing that I have changed the universe.

The reaction may not be immediate, nor will it occur simultaneously for all students in the class. But, sooner or later, even the last student in the class will be convinced that something has happened to the contents of the box. They do not know, if my sleight of hand is satisfactory, what caused the composition of the box to change. They may guess; they may have doubts

as to my integrity in keeping the contents the same as when we started; they may have all sorts of ideas as to what caused the change; but the sampling has told its story. There is little doubt that the contents have changed.

The first question I want to raise for discussion is: Do you want an experiment or a survey?

Whether the number of reds in the box is 15 or 200, a survey will reflect the true composition. But the usual question is what induced the change in composition. For example, you may go into a city to learn the rate of incidence of a particular disease. But this is of relatively minor importance. What you would really like to know are the conditions, the stratification variables over the city, that induce high incidence and low incidence of the disease. We often do infer that, by stratification in sampling, we have demonstrated causes for existing differences in the population; actually the survey reveals only association not causation.

The subject of this workshop is specifically related to a discussion of experimental design vs. the pilot project approach. I think we have changed a bit the theme of the symposium for the following reasons. It is my conviction that you cannot possibly decide upon the design or the method of experimentation until you have answered two other very serious questions which by listening to your discussions for the past days, have become all too evident. We will discuss two general areas - I hope others will come up in the course of the discussion.

One, you are going to need to know the criteria that measure progress. If you want to be specific, ask this question in terms of the farm and home unit itself. What is progress? Is it unidimensional? Obviously not. Mr. Wilkening's opening discussion the other day made this altogether clear. There are many, many aspects of progress. Mr. Wilson and Mr. Croy also spoke of the multidimensional character of progress. You can examine improved income. You can examine increased standards of living. You can look at increased participation in community affairs. Are these all aspects of progress of the farm and home unit? This you must establish once and for all. You must get some kind of agreement as to what measures progress, because this is the thing that you are going to use as a criterion of retrogression or progress.

In addition to this multidimensional character, you also have to look as Mr. Grant pointed out, at the methods of analysis. The methods of analysis depend upon the criteria. If, for example, you can put all of these criteria into one measure, then you have a reasonably simple experiment, or reasonably simple survey. If you go out with a survey, or if you go out with an experiment, what are you intending to do? Are you going to tabulate answers to a number of questions, take out a questionnaire with a couple of hundred questions on it, tabulate means, numbers of yeses and noes, numbers of people who do this, numbers of people who do not? Is this the answer to your real question? I think not. You must have a method of analysis and the criteria that are going to go into that method of analysis before you can ever think about design. That is the reason why we have changed or why, at least, I have tried to change the theme here. I cannot discuss design of an experiment nor the form of the analysis until I know the criteria by which you measure.

I want to draw one more distinction before I subside. I think you will have to answer one of two questions, or possibly both. Are you getting out to evaluate your own "selling" procedure? That is, - are you trying to evaluate how well you are doing your job in the sense of "selling" improved procedures, once you get agreement upon what improved procedures mean. Are you trying to evaluate your own ability to get these procedures adopted, or are you attempting to measure what progress is made by the participants who accept these recommendations?

These are distinctly different problems and they require different methods, regardless of whether you use the experimental method, or the survey approach.

Beal:

Mr. Burrows has challenged our thinking. Do we have questions for him?
Mr. Beers what do you have to offer?

Beers:

Mr. Burrow's questions are cogent and very important. I have a good deal of doubt frankly, in my own mind, that what the scientist considers to be the experimental method is applicable in any true form in our case. We extension workers are interested primarily in evaluating as carefully as we can the consequences of our own actions. We cannot, by the nature of our assignments, and commitments, undertake to do "basic" research. That is another kind of a thing which has to be indulged in by other people who do not have to use their time as we use ours. What we are seeking here is some practical and useful procedure that will give us some basis for determining how well we are doing.

Now on the question of the criteria that measure progress. This is indeed an important question. I suspect actually we have gotten closer to an answer to that than we realize. We do have goals, we have objectives, we want to help the people with whom we work to raise their levels of living, and to increase their incomes and I do not know that we need to get more specific than that, really.

The selection of measures of our effectiveness in bringing this about gets us into some technical questions. You can tell whether incomes are rising by finding out what the incomes are at different stages. But how we can decide, to our own satisfaction, whether we are influencing levels of living is a little more complicated. We have to develop some indices. It does not seem to me, Mr. Burrows, that the question of criteria is terribly important so far as specifying details is concerned. I think we know in general what we are trying to accomplish. The selection of criteria that will help us to determine whether we are accomplishing those things is a problem.

Now, so far as the application of the experimental method is concerned, you have to control things a little bit too much in order to conduct an experiment in the truly scientific sense. You have to start in two areas or with two groups and in one area or one group you have to do some things that you deliberately do not do in the other area or in the other group, and by the

time you have tried to exercise the restraints, or the limitations, that will keep your control group under control, you have deprived some people of an educational opportunity. I do not know that we are justified in doing that. Can we deliberately withhold the farm unit approach from some areas if we think it is a good thing to do? We have got to make it available to all of the people. I do not know if we are justified in trying to set up experiments. I am not sure but that the survey method will give as good guideposts as we are justified in seeking for justification of our educational activities. We hope at the same time that some of the people involved in basic or pure research will be trying to develop new bodies of knowledge that we can take over from them. I do not think we can do it ourselves.

Beal:

Let us get some reaction from Mr. Burrows to these points. Do you have any reaction to these specific points?

Burrows:

I do have a couple of comments. One concerns your answer to my comments concerning the necessity for very careful consideration of the selection of criteria. I would agree that probably the criteria are fairly well in your mind. However, our methodology does not tell us how to put these criteria together. In other words, we may get agreement upon the various aspects of progress of the farm and home unit. We probably would all agree that increased income is one aspect. We probably would have some debate as to whether or not to include as a criterion increased community participation. Not much, but probably more than on income. How about increased ease on the part of the housewife? We might lump this into what we call level of living. How are these things put together? The statistician has to ask himself, how are the answers to such questions as "Do you own a refrigerator?" "What is your income now relative to what it was previously?" How are these answers to be related in terms of the analysis? Are we simply going to say, so many people had, so many people did not, among the group who adopted these practices as opposed to those who did not adopt the practices? We must have some means of incorporating these criteria into the method of analysis; this is the gap that I was speaking of. How do we put these criteria together? There are methods which many of you probably know. Many of you probably have better training in sociology than I. However, the other day I took the precaution of digging out the Hagood and Price book and reviewing the techniques that have been used for this specific purpose. The main one is something which has been called factor analysis. This is not nearly as forbidding as it may sound. I think probably most of you have some knowledge of that technique. Actually it is nothing more than a technique for reducing a large number of observations on many factors to a few or a single factor that may be identified with what we are trying to measure, say, level of living.

My second comment has to do with the matter of a control group. It is apparent that in the process of demonstrating what a recommended farm practice or combination of practices can do on one group of farms the so-called control group will undoubtedly shift to those practices insofar as they prove successful. So we no longer have a control group at all. Does this mean that we no longer have an experiment that is a demonstration? I think not.

Perhaps my use of the words demonstration and experiment as synonymous is not particularly apt.

Beal:

Let us ask Miss DeLany what "demonstration" means to an extension worker.

DeLany:

There are only two or three persons here who went to the University of Chicago in 1945 and sat around and discussed whether or not extension workers can do research. When we talked about extension studies it was very encouraging for those of us who were there as extension workers to have research people tell us that an overall purpose of extension studies was improving or increasing the effectiveness of the Extension Service; that one of the outcomes of any investigation conducted by extension workers might be the actual improvement in the worker himself. I think we have obtained two things to think about. One is the kind of investigation which might be classified as an extension study which might have as one of its purposes the straightening up of some of our thinking about our work itself. The other might be extension research which aims at discovering new facts and might be a little more of this experimental approach.

Somebody has defined research as an organized campaign against the unknown. That might encourage some of us who are not evaluation experts or sociologists to know that, since we have had some experience with campaigns. Perhaps there are some campaign techniques which we could use to get at a sound design of an investigation. It has been my experience that people want answers to problems. Some of us in extension personnel work are supposed to help get them. Often those who want answers are too busy to sit down and answer some of these questions which only they can answer. What is the problem? Why do I want to study it? How am I going to get answers to it? What are my criteria going to be?

Gibson:

From my point of view the general notion of demonstration does not fit here because demonstration is something which you do when you are already pretty well convinced. You go out somewhere and you carry on a process where it is highly visible and bring people around to look at it and say, "see, this works. It not only works but it is efficient, that is, it is worth the extra amount of money and effort that it costs you to do it."

Now, that is a far different cry from trying to explore the unknown, to widen the horizon of knowledge, to answer questions about an area in which you do not yet quite know what the answers are. And so I do not think that substituting the word "demonstration" and saying we will just go out and see whether our demonstrations work or not, is the answer to our questions.

Beal:

Duane, on our subject here - this pilot project - would you distinguish in your mind between a demonstration and pilot projects, or are those words in your vernacular?

Gibson:

Well, the minute you start setting up what you call a "pilot project" I think the nearer it will get to being a demonstration. You use the very best ideas that you can dream up, saying, "We cannot take chances on this because we want to be as sure as we can that it will succeed." This, I think, was what happened with the plans that were laid for the demonstration or pilot project county library set-ups that were done within the last 6 or 8 years. They did not dare try to experiment, to take chances with things that they were not quite sure about. No, let us make a decision, let us pick the thing that we think is most likely to work. We will use that and afterwards we will try to see whether it was successful or not, but we have no basis of comparison.

DeLany:

Well, as far as experimental design goes, when you speak of demonstration or experiment, do you mean, for instance, if we were to study the effect of some method, we could use what might be called a presence and absence system? This group has it - this group does not - and we will measure the differences. That would be an experiment. I want to teach something - A, B, C and so I use a method or a combination of methods with this group and I do not use it with that group - so that is an experiment. Right?

Burrows:

Yes, I would say that that is an experiment. I do not want to "push" this word "demonstration." I am convinced now that I chose the wrong word. I used the word merely to get on common grounds with my colleagues, the statisticians, and you folks but I do not think we are as far apart as we would appear to be. With respect to your comment I would add that there is no absolute requirement for the control group. Why do I say that? It sounds risky. Every experiment has in it some element of this lack of control and what you folks are doing is to a degree the same sort of thing that the physical scientist does. He sets up an experiment in the laboratory. He does not always run a parallel experiment. Suppose he is interested in the reaction to a particular chemical. He says, "I know what would happen if I put water in here. It would produce nothing." There are probably those people who will quarrel with him.

Back in the days of typhoid, before we knew how typhoid could be carried, I expect that the reactions which he might have obtained from injecting water, if he did not know that it was chemically pure, might have been quite different from the assumptions that he was making. But what I am saying is that in any experiment we take something for granted. You have to. Here you folks are worried, and not unduly so, I think, about when you get a participant in your program to adopt certain practices, what criteria to adopt by which you can say, "The adoption of this practice has in fact been responsible for the change, be it for good or for ill." It seems to me that is what we have been seeking the last few days.

We need benchmarks, for example, to know where the participant started from. Where an individual starts from affects how far he can go. We know that his level of intelligence, for example, can tell us how much he can achieve. We feel that these things are all relevant to what the final progress will be.

Must we then match with this individual another individual of the same level of intelligence?

Your problem is not unique. We get into the same situation in retail store experiments. Economists tell us that it is impossible to experiment because in retail stores you cannot ask a retailer to price a certain commodity 10 cents a pound more than his competitor. It would put him out of business. Ten years ago this was thought to be true, but it is being done every day.

Beal:

Well, if you do not carry along the control group, what happens to the difference between an experiment and a survey? Does not your experiment become a survey if you do not have a control group?

Burrows:

You have two means of comparison: The result of the change with what existed before you started out, and with the non-test group.

Beal:

Well, then if you have two surveys, one now and one later, it becomes an experiment.

Burrows:

It is true that this is much nearer what we do in the survey technique. What we have to do is to establish benchmarks and examine progress. What is weak in a survey is that the burden is then upon us to relate any of the changes to what has taken place between the changes. In other words, the burden is upon the analyst. The burden is not upon the evidence, but upon the strength of the analyst to say, not what are the results, but what have induced the results.

Gibson:

May I illustrate that? Suppose in terms of trying to select the best person for promotion, we were to take county agents and by some means break them into two broad groups, a group of the better agents and a group of the poorer agents. Suppose we made a survey and we asked agents, "Do you like to go for long walks?" We found, for example, that the better county agents did like to go for long walks. The survey technique as opposed to some kind of experiment is one in which you now assume that because there is a correlation between goodness as an agent and liking for long walks, that this is a cause of relationship and probably selecting people who like to go for long walks will help to improve the county agent program.

Burrows:

This is a good example: The point I was attempting to make was that the decision as to whether or not we used the length of walk as an indication of success rests upon the analyst, and not upon the data. This is the difference between experimental evidence and the survey type of approach. But the same quality is present in an experiment. You add acid to a certain mixture and you get a gust of smoke. We say that it is because we added the acid to the mixture. Why? It is only a degree of precisely the same thing.

What we did was to control the environment. We set before us a certain environmental condition. We altered the environmental condition and certain results took place.

What are we using as a control group . . . all those possible conceivable experiments that could have been set up wherein you add water or you add milk, or you just add anything and nothing happens. We know nothing is going to happen or we suppose that nothing is going to happen. All we really did was to add acid to this mixture and we got an explosion. We say that a control is not necessary, yet in the situation we are talking about say, in our sociological experiments, we feel that this control group is necessary. I am not advocating the abolition of the control group. I am saying that the carrying along of the control group is not going to insure the result that you want. The real strength of your result will come from the data themselves, from inducing people to make changes, and examining the consequences of those changes. The consequences will have to rest a good bit upon the strength of the analyst, but so it does in all experiments. All you are attempting to do is to reduce the magnitude of the burden that is placed upon the analyst.

Gibson:

I would like to make this one comment - that, from my point of view, the gimmick in your illustration about the mixture into which you pour acid - the difficulty here is that it is possible that anything that you might add to some particular mixture will produce this very kind of effect that you are talking about an explosion.

Beers:

May I shift the illustration over to our field of extension? Some of my colleagues have expressed a wish to do an experimental study. The suggestion takes something like this form, that we engage in research in four counties. In county A, the practice method of extension teaching will be used. In county B, what we might call the farm organization method of extension approach will be used. And in county C, some kind of a decision-making or a farm and home development or a farm unit approach will be used. And in county D, we "won't do nothin'." That will be our control group. And then we will try to find out, not only the differential effects of these three approaches, but will make it further complicated by examining one sample of low income farmers, another sample of part-time farmers, and another sample of beginning farmers - young people just beginning to farm - and another sample of retiring farmers, or older people on the way out, etc. So, we have stratified our farmers by type; we have stratified our extension approaches by type; and we have got a control county. It strikes me as being a proposal for an experiment, but it strikes me as also being a little bit too complicated, also it would not be exactly an extension study. It would be basic research applied to an extension problem. It strikes me as being a little bit too complicated and a little bit too elaborate to be actually capable of fulfillment. Is my pessimism justified? First, is it an experiment?

Burrows:

I would say that this is, indeed, an experiment. I think that if in place of the word "county" you just put the word "plot of ground," and in place of your various teaching methods you put "levels of fertilizer," you will see that you have precisely the same sort of experiment that the fertilizer experts put out to determine whether or not he should apply one level of fertilizer or another.

You are going to tell me that the control is in there. Why is it that in the fertilizer experiment you normally have plots without any fertilizer? I think we have essentially a one-to-one correspondence and that you do, indeed, have an experiment.

Beers:

Is it too complicated? "Can they analyze their fertilizer plot experiments" might be the way to answer that. Can you control these extension people in counties A, B, C, and D? Will one of them promise to use only the practice approach and never slip?

Burrows:

This raises what seems to me to be a very fundamental question if you try to direct yourself toward improved methodology. It seems self-evident that the further you go, and the more precise you try to get your experimentation, the more difficult in sense of handling, it will turn out to be. I do not think this should persuade one not to attempt to go in that direction. There are a number of experiments, I think that the Bureau of Census has carried out comparable to the sort of thing that you are suggesting here. For example, you are going out to do survey techniques. Now here you have got the survey and you inject an experiment into the survey. The experiment is this - you are experimenting with different methods of attempting to elicit the same information, but they do not give you the same results. I think it is the same thing you are speaking about here. These people have over the years gained a good bit of experience; these things cannot be administered without some care. In that respect the biggest problem would be to get across one motivation, which goes a long way toward getting the kind of control that you need in an experiment. Secondly, you must get across the notion that in an experiment this kind of control is necessary, this kind of uniformity is much more important, and if people can be convinced of that I think that it can be achieved. I think you could very well put this to the test.

Beal:

I think we have enjoyed ourselves up here but you people have not got a chance to get into the conversation, so let us move it on out for the 10 minutes that we have left. Let us have questions from the floor from anyone and everyone up here on specific or related subjects to this general framework.

Gibson:

I have a question concerning Mr. Beers' illustration. In the four counties you call control counties - can you do no teaching? Suppose you address yourself to the question of what is your success in promoting good ideas, getting an adoption of good ideas, or ideas that have been proven. But if you ask this question, it seems to me that this whole matter of proper criteria becomes immediately evident.

Burrows:

Probably the sound method of evaluation is the one you have mentioned; namely, progress of farmers - that is of the participants. This would seem to me the real criterion, but I think there are opponents of this view. They might

ask: What percent of farmers are participating? Or what percent of farmers are being induced to participate? How many have been induced to participate but have dropped out? What was the length of participation period? What were the causes for dropping? These things become evident if you use just superficial measurement, namely, the numbers of people on the books, number of people who have dropped, etc. The much more vital criterion, it would seem to me, is the one we have mentioned; namely, the overall progress that has been made.

What is the weakness of the control group? It is the weakness that you pointed out and that Mr. Croy also pointed out - how do you know that it remains a control group? Again I use as an illustration the economic experiments, where any achievement by the best group induces the control group to do likewise. My answer is to put upon the control group only the weight that it deserves because it will not long remain a control group after any real significant achievements have been made. If what I call treatments, the things that you are out to measure, produce any desirable effect, you will find that your control group follows along. We also know that diffusion is a rather slow process, so there is a possibility of measuring some change before the diffusion process takes place completely.

Gibson:

In trying to carry out an experiment is not the question of ethics involved? You can practice on animals all right. I do not mind their working on a live dog to find out what happens, but I am a little bit concerned about working on live people and live families with techniques that we think may be inferior and we could do something better. I think there is the question of ethics involved in the experimentation of social science.

Beal:

Dropping out of role just a little bit here, I wonder how many of you saw Ed Murrow's program with Dr. Salk right after the results of the Salk experiment had been announced. Dr. Salk came out with the thought that the most important thing out of this whole experiment was the fact that we had proven that we could do just what you described, Duane. We administered vaccine to half the population; we did not to the other half. We did not know for sure it was going to pan out, but we actually did it, and he said this opened up tremendous frontiers, he thought, for this kind of social research, actually using people as guinea pigs. Whether the analogy is sound or not, I am not quite sure, but I think that it is pretty important that this kind of thing is being done on such a scale.

DeLany:

Another question is, how can you get an agent to agree to work in such an experiment? Should they know they are participating and agree to, or shouldn't they? It seems to me that agents will participate in designing and carrying out an experiment if they are on committees which decide that a certain problem is important, and that it needs to be studied, and they participate from the beginning in deciding what is the problem, how are we going to carry out the study? Is there going to be a survey or an experiment, are we going to use questionnaires, etc.? Under such conditions they are very willing to volunteer, to take part. Of course, how far they will go

will be another question. I do not think there is any problem about getting agents to participate if they take part in the planning.

Gibson:

I would like to make this brief comment. I think you made a very good point about the possible use of factual analysis, if I got your point correctly. It seems to me that one of the things that some one of us needs to be digging into is this area of what is the interrelationship among your idea and my idea as to what represents progress. I think there is a tendency for us all to agree on this notion of income changes. This seems to be a kind of least common denominator. In the discussion we all came back to income in the hope that the things in which we are really interested are, in part, a function of this income; that it represents a kind of intervening variable. I think one of the things that we do not know for sure, that might be worth testing, is to determine the relationship of this assumed intervening variable to a variety of other kinds of things like social participation which different ones of us are using as criteria.

Beal:

Because of our time, I am not going to attempt to summarize at all, and I am sure this discussion could go on at great length. I would like to just mention two points. One is that it seems that we have a little disagreement on whether or not the criteria are specific enough at this stage of the game for us to actually decide on what measure we want.

Then I think we come back to the second point mentioned by Miss DeLany, and that is - how much liaison do we really have between the action person and the research worker. When the research worker goes to the action person or is called in after the program is well under way I think that there is oftentimes difficulty on the part of the action person who is in charge of the program, to verbalize his specific objectives so you can set up these criteria and these measures that you mention.

Those are two areas I think where we still do not quite agree -- how specific must objectives be, and how uniform? I am sure we would find that our objectives, if you want to call them that, are not uniform from State to State. With these two points I would like to finish, after thanking the panel for participating and saying how much we enjoyed them.

Panel:

George M. Beal, Chairman
Howard W. Beers
Glenn L. Burrows
Duane L. Gibson
Dorothy DeLany

THE FEDERAL REPORTS ACT OF 1942

Meredith C. Wilson
Director, Division of Extension Research and Training

and

J. Richard Grant
Acting Statistical Clearance Office, AMS

According to the Reports Act of 1942, no agency of the Federal government shall collect or sponsor the collection of information upon identical items from 10 or more persons (other than Federal employees) unless the plans and report forms to be used in such collection have been approved by the Director of the Bureau of the Budget.

The administrative regulations of the Department of Agriculture developed incident to carrying out the provisions of the law clearly indicate that cooperative Federal-State projects, including the Cooperative Extension Service of the United States Department of Agriculture and the State Agricultural Colleges, come within the scope of The Federal Reports Act of 1942. These regulations also provide for approval by the Administrator of the Agricultural Marketing Service of plans and forms, to be used by the various agencies of the Department in information collection, prior to their submission to the Bureau of the Budget.

In carrying out the provisions of the Federal Reports Act, the authorized officials are primarily concerned with plans and forms which are used to provide statistical compilations of general public interest. A high proportion of the information collected by extension workers is incident to the conduct of extension locally and is not for the purpose of preparing statistical compilations of general public interest. The following guides have been developed for determining the kinds of collection plans and forms which should and should not be submitted for review and clearance under the Reports Act. These guides are intended to hold to the minimum the annoyance, delay, and unnecessary correspondence which might tend to defeat the intent of the Federal Reports Act; namely, the avoidance of duplication and the better coordination of statistics-gathering activities of the various agencies of the Federal government.

A. Do not require review.

1. Plans and forms for collection by county extension agents of information for use in county program determination, execution, and evaluation are essentially local in nature and not of general statistical interest. General waiver of clearance is granted for such plans and forms. They should not be submitted for review.
2. Record, report, and other data-collecting devices prepared by State extension workers which are incident to the organization, conduct, and evaluation of 4-H Club work, home demonstration work, and similar extension programs, or incident to the collection of statistical information on extension activities and accomplishments needed for administrative reports, are granted general waiver and do not require submission for review or clearance.

B. Do require review.

1. In the case of State Extension-sponsored or State Extension-participating activities that are similar in nature to the information-collection activities of established statistical agencies, such as the Agricultural Marketing Service and the Census Bureau, the data-collection plans and forms should be submitted for review and, where necessary, for transmittal to the Bureau of the Budget for clearance.
2. Questionnaires for use in collecting information from business concerns, such as manufacturers, wholesalers, and retail branches, should be submitted for review and clearance in all instances.
3. When in doubt the information-collection plans and forms should be referred to the Federal Extension Office for advice as to need for review and clearance by the Agricultural Marketing Service and the Bureau of the Budget.

Each State Extension Service has been asked to designate one person to be responsible for keeping in touch with all information-collection activities of the Extension Service and for transmitting to the Federal Extension Service plans and forms of a nature requiring clearance. Frequently the State Leader of extension studies has been assigned this responsibility.

In transmitting State Extension Service plans and forms under the Federal Reports Act of 1942, the following procedure, if closely adhered to, will expedite handling:

1. Enclose four (4) copies of the proposed questionnaire or other information-collection device.
2. Enclose four (4) copies of a narrative statement which supplies the following information:
 - a. Purpose of survey--who wants the information and why. Be sure to mention any Federal agency involved.
 - b. Type and number of respondents.
 - c. If sampling is to be used, the method of selecting sample; or if a mailing list, the source of mailing list.
 - d. Dates of survey.
 - e. Frequency of survey--only once or periodically.
 - f. How information will be collected; follow-up to complete sample if sampling procedure is followed.
 - g. Who will collect the data.
 - h. Plan for analysis of data.
3. Send in the proposed questionnaire and accompanying narrative statement well in advance of date for collecting data. Four weeks should be ample.
4. In the case of a questionnaire which requires clearance by the Bureau of the Budget, six copies of the final questionnaire as duplicated for field use should be submitted for filing with the Agricultural Marketing Service and the Bureau of the Budget.

Correspondence involving information-collection plans and forms should be addressed to Meredith C. Wilson, Director, Division of Extension Research and Training, Federal Extension Service.

PROGRESS EVALUATION DURING THE EARLY STAGES
OF EDUCATIONAL PROGRAMS

Andie L. Knutson
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Most of us who work in the field of education are concerned about the effectiveness of our efforts. One educator, when asked to give his concept of heaven, replied, "Heaven is a place where I can get a clear view of the significance of what I am doing."

Evaluation is the process of determining the worth or value of something relative to a given purpose. It is a process of making decisions, drawing data together, judging pertinent facts available, weighing the pros and cons of various suggestions, and selecting from among alternate courses of action. All of us are making judgments or evaluating almost every moment of our lives. Thus, evaluation is by no means only the problem of the specialist.

One purpose of evaluation is to determine whether or not our efforts have been successful in achieving the program goals. This type of evaluation might be called evaluation of achievement.

In evaluating achievement, it is necessary to obtain a baseline to determine the present status of the program and then, after the program has been in operation for some time, determine what changes have occurred. The evaluation of program achievement, therefore, requires the assistance of a specialist. Obtaining a concrete and valid measure of program effect requires a great deal of planning and skill and is likely to be costly. Control groups may be necessary, for factors quite independent of the program may influence achievement.

The purpose of evaluating program achievement is to determine how far we have come, which, of course, requires knowing where we are starting from and where we are planning to go. Success in this type of achievement depends on the adequacy with which the baseline is drawn and the precision with which objectives are identified. Sound evaluation of program achievement is essential in order to determine whether our programs are achieving the purposes for which they are developed. The public has a right to know whether its money is well spent.

Evaluation also has another purpose and that is to provide guidance for the conduct of program activities. Many decisions must be made in the course of program planning and operation. Evaluation can contribute to program operation by providing assistance in determining the intermediate steps that need to take place in order to accomplish the long-range objectives and to measure the achievement of these intermediate steps, to make each new decision a little bit sounder than the last one. This type of evaluation we might call the evaluation of program progress.

It is helpful to think of a program as a process which goes through a number of phases or intermediate steps which must be achieved in order for the program to be successful. By evaluating the process of the program in

achieving these intermediate steps, it is possible to identify difficulties or barriers as they occur and to make necessary changes on the basis of the best objective data available. Sound evaluation of progress made as a program continues day-by-day can help to assure that each new phase of the program is built on the positive achievements of the preceding phases.

Thus, the purpose of evaluating program progress is to improve the quality of decisions made at key points during the planning, development, and operation of the program.

The values of evaluating program achievement have long been recognized but less attention has been paid to the value of evaluating program progress:

By means of progress evaluation it is possible to identify some of the barriers that lie immediately ahead and to find ways of overcoming these barriers before they block us.

Such evaluation can be done in smaller units. It is concerned with smaller segments of the program rather than with the entire program.

It requires less of an investment in time and personnel at any given moment.

Extensive controls are not necessary. Since this approach is directed toward identifying barriers or facilitators to the program, the evaluator is less concerned with obtaining precise data and more concerned with gathering guidance data. The decision as to the value of these findings will depend in good part on their face validity.

This method of evaluation yields usable results at the time they are most needed and thus helps to increase the likelihood that the program will be effective.

The samples used for such evaluation may be much smaller provided they are well selected to include both the representatives of those responsible for the program and the professional and lay members of the public concerned.

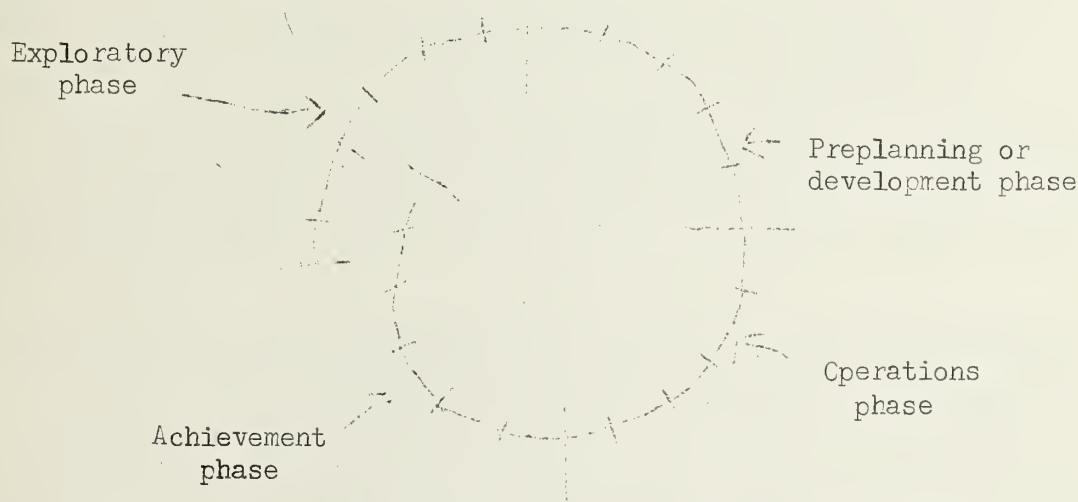
The costs of such evaluation in personnel and funds are much lower and spread over an entire program.

The extent of the evaluation to be carried out depends upon the fruitfulness of the efforts made.

The methods of obtaining data for evaluating program progress do not need to be complicated. In fact, often the simplest methods yield the greatest return.

The method can be applied whether we think of a total program such as the overall extension program or the efforts of an individual extension worker who is attempting to achieve specific objectives within this broad framework.

Almost any program goes through a certain number of phases which, for want of better terms, we might call a period of exploration, a period of preplanning or development, a period of program operation, and finally a period of achievement and assessment. As one program is achieved, exploration takes place relative to future program possibilities. Thus, one phase grows upon the other in the manner of a spiral. Overappings occur in this general pattern within any operating program since many programs are likely to be concurrently in operation and often in different stages of development. It may be helpful to think of progress evaluation with the framework of this program cycle.



Program cycle of progress evaluation

In the present discussion, primary attention will be devoted to progress evaluation during the first and second phases of program development, i. e., during the exploratory and preplanning phases of the program.

The period of exploration is that phase of the program in which we may be uncertain as to where we are going and possibly are not even sure of the precise definitive of the problem which needs solution. We are concerned with exploring the problem, finding out the primary need, and defining the situations about which something must be done. Decisions made during this phase of the program are often the key to the success of the program. An error made at this point of the program may lead to great loss in future personnel effort and program cost. For example, the program can go astray if the need is not adequately defined, if some key individuals are left out of the program planning or if the wrong type of person is selected for some key program post. Progress evaluation is focused toward identifying such weaknesses in the program when they occur and thus make the corrections to minimize this future possible loss in facilities, time, and effort.

The key question of progress evaluation during the exploratory phase is "Have the interests, needs, or wants we are trying to satisfy been adequately identified?" This does not mean that every fact should be gathered before starting program activities but rather "Have all the essential facts available been considered? If some essential facts are not available, can they be easily obtained?"

In considering the facts needed during the exploratory phase, it is important to consider both the technical facts available to the expert, and the facts from the point of view of the farmer or other layman toward whom the program is focused. How does he see the problem? What does he know and think about it? What possible solutions does he consider possible and acceptable? How does his formulation of the problem compare with that of the expert? It is always worthwhile, and sometimes possible, to find out from the farmers themselves what they see as problems which interfere with their daily living and home and farm management, and also what programs they see as meaningful.

In obtaining the viewpoints of farmers in identifying the problems which they see as important, it is essential to approach them using their language and asking questions that have meaning from their point of view. Sometimes we forget that the layman does not think in the same terms as the professional. Some of the concepts we use as professional people have different meanings for them. As a result, we may get answers if we ask questions formulated from a professional point of view and using professional terms, but these answers may not have the meaning we assume.

For example, one of our local health educators, seeking to identify the public health needs within a community, first made a small survey using an interview with questions formulated in traditional public health terms -- health, public health, tuberculosis, sanitation, etc. She identified little that was new or unexpected and was unhappy because she was certain that many public health problems were not being reported. The questionnaire was revised to include questions of a more open nature which did not obviously relate to health. These questions encouraged respondents to discuss freely the little things that families run into when they first move into the neighborhood. Using this approach, that had more meaning to the layman, the educator was able to identify a wide range of problems which had not previously been reported. Some of these were of great public health significance. The people mentioned the need for recreation facilities for preschool children who were now playing in the streets, the need for a registry of local medical services, particularly so that expectant mothers would know where and how to reach the nearest physician. Mothers with young children desired help on behavioral problems. Many mentioned a concern about uncontrolled dogs roaming the neighborhood. In other words, the people were concerned about many public health problems, but they did not realize that these were the problems which the professional person meant when using the term "public health."

As the needs of the program become adequately identified and the situation determined, questions arise as to kinds of persons needed to work on the problem and the types of resources available. At this stage, the period of exploration gradually merges into the second period which we might call preplanning. The question of progress evaluation at this point might be stated, "Have the program objectives, philosophy, and policies been fully agreed upon, formulated, and written down?" We are concerned also at this point with questions like "Are the people who should be involved in planning these objectives and philosophy included in the discussion group? What are some of the ways of getting the program started? What qualifications should be considered in selecting people to carry out the program?"

By writing down the objectives, philosophy, and policies, we can sometimes identify points of agreement and disagreement earlier and more sharply. Disagreements on these matters in the early stage of the program may lead to conflict as the program develops. Such conflicts may not be as easy to identify later on if they stem from misunderstandings on fundamental points which may be assumed by all to have been agreed upon. For example, the broad philosophy of a program and the policies of the program play an important role in identifying the methods or procedures to use in carrying out the program. If the method is one that conflicts with the philosophy or policy, this conflict can be identified if the philosophy or policy is clearly formulated. In this way, the statement of objectives, philosophy, and policy becomes a working framework for program development.

To the extent that it is possible, it is helpful to state the goals of the program in terms of specific practices that we desire to teach. This is a good way of keeping plans concrete and practical. It is more than an exercise. When objectives can be specifically identified in terms of action, methods of achieving these objectives can be selected with greater confidence.

Clear formulation of objectives also requires identifying the intermediate goals that need to be achieved in order to attain the program objectives. Almost any program can be broken down into intermediate steps that can be measured. If the measurement shows that the step has been achieved, one can feel confident in going forward to the next step. If the data suggest that the intermediate step has not been attained, it is important to find out the reasons for failure or difficulty and to pause long enough to develop a more effective method for achieving the intermediate goal.

During the period of preplanning, we are also concerned with the selection and development of the methods, techniques and procedures to be used in the program. A progress evaluation question is: "Is the method or approach selected the one most likely to prove successful in achieving program objectives?" If the purposes of the program have been broken down into specific intermediate goals, a long step has been taken in identifying the best methods and techniques to use. In making the final choice of program method, a useful technique is to list the objective evidence in support of or against the use of a particular method being considered. Some of the criteria that may be helpful in selecting the methods to use include:

What objective evidence is there to support or question the likelihood of the method achieving the specific objective or intermediate goal intended?

What will be the cost in terms of money, time, and effort of achieving the objectives using the particular method?

What type of personnel will be needed to carry out this method and are these personnel available?

What resources are needed to carry out this method and are these resources available?

How long would it take to achieve the objective using the method considered?

Considering the resources available, is it realistic to apply the method as a way of achieving the ultimate objective? For example, how many professional people will it take to complete the job with the intended group in the farm community using the specific approach considered? Are any short cuts possible?

Could some other method be selected or developed which would more adequately satisfy criteria such as those above?

The period of preplanning and the period of program operation are in many ways inseparable. One flows gradually into the other, for the period of operation within an educational program involves constant development, testing, and revision of methods and procedures. To the extent that objective data can be utilized in making these changes, the program has a better chance of success.

Pretesting may be used during this period to answer such questions as these: Do people understand the purpose of our efforts? Is the purpose one they want to achieve? Do the practices we recommend make sense to them? Are these practices in accord with the way people usually behave? Are our attempts at communication successful with other professional and lay groups?

Adequate answers to such questions can sometimes be obtained with small samples provided the individuals are selected in such a way that they are representative of the groups for whom the program is intended. A primary consideration again is that the approaches used to obtain responses from the public be formulated within their frame of reference so that the questions they are asked are meaningful to them. Their interpretations of materials or program suggestions often provide useful clues as to whether we are effective in our communications.

It is important to distinguish between the long-range objectives, the intermediate steps which need to be taken to achieve these objectives, and the housekeeping activities which may or may not be concerned with the achievement of objectives. Records of the number of hours worked, the number of materials prepared, the amount of money expended, the number of pamphlets sent out, etc., may be important from an administrative point of view since that may be one indication of the degree of effort. Such housekeeping records, however, should not be interpreted as evidence of progress.

A carpenter, for example, may be concerned with building a garage. In building this garage he must complete a number of specific steps -- building the floor, putting up the studding, putting on the walls, putting on the wood, etc. He measures his achievement in terms of the degree to which he has completed the specific intermediate steps. He also makes a sharp

distinction between completing these intermediate steps and achieving his ultimate objective which is the completion of the garage. At the same time, he distinguishes between achieving these intermediate steps and the housekeeping records which are necessary to determine the degree of his effort; i.e., the number of hours on the job, rest periods taken, tools used, etc.

If, in putting up the garage, one of his spikes cracks a studding of inferior quality, he holds up the operation long enough to replace that studding before completing the garage. In other words, he applies progress evaluation to the immediate task and in this way is able to avoid the problem of pulling down part of the wall at some later date to remove the inferior studding. By identifying the weakness as it occurs, he can take immediate steps to correct it instead of waiting for the inspector to ask him to do the job over.

It is often useful in developing an educational program method to identify systematically the individuals who are in a position to influence the flow of ideas between ourselves and the persons with whom we are seeking to communicate. In rural areas, the intermediate persons may be the county agents and their assistants, leaders and influential members of the various farm organizations, employers, storekeepers, political ward leaders, ministers, etc. Such individuals are sometimes called "communications gatekeepers" since they are in a position to open the door and encourage the free flow of ideas or to close the door and prevent ideas from passing through. They may influence the acceptance of an idea by lending it their prestige and support or they may withdraw influence from it by deprecating it. They may willfully distort an idea if they are so motivated; or they may unwittingly change its meaning through failure to understand, lack of adequate information or misinterpretation.

Analyzing a program in terms of communications gatekeepers is useful because if we know the pattern of the gatekeepers touched by the program, we can plan the distribution of information and ideas in such a way as to take maximum advantage of the existing pattern. This helps to assure that the idea passes through each gate with the maximum prestige value.

In seeking to identify gatekeepers, it is important to look both from the point of view of the professional program person and from the point of view of the lay public; that is, we need to identify the gatekeepers recognized by the senders of the communication and also those identified by the persons who receive the information, for the two groups of gatekeepers may not be the same in all instances. Knowing the gatekeepers the layman looks to for information will give valuable clues in planning the distribution of new ideas.

In this discussion, primary emphasis has been given to questions that may be raised during the early phases of the program planning and development. To the extent that valid and reliable answers are obtained to these questions, the likelihood of program success will increase. Often valuable insights can be obtained during the early phases of the program by analyzing available data in a systematic way or by interviewing small samples of people at different phases of the program to obtain

their reactions to specific aspects of the program. By applying the tools of measurement in evaluating program progress, we can obtain data for the guidance of program improvement.

The data obtained in evaluating program progress are not valid for determining whether or not the broad goals of the program have been achieved. For this purpose, sound studies of program achievement are essential. Both types of evaluation are needed in order to satisfy the two purposes -- guidance in program improvement and valid measures of program effectiveness.

OBJECTIVES PECULIAR TO THE FARM AND HOME UNIT APPROACH
THAT ARE SUSCEPTIBLE OF MEASUREMENT

Otto C. Croy
Assistant to the Administrator, FES

What is the farm and home unit approach?

The name differs from State to State and it is called Farm and Home Development, Farm and Home Planning, Balanced Farming, Better Farming and Better Living, Balanced Farming and Better Living, Farm Business Analysis, and Farm Business Counseling.

It is an effort by the Extension Service to provide farm families, in a better organized and more intensive way, with the necessary counsel and assistance to enable them to (a) identify and analyze effectively their major farm and home situations and opportunities, (b) determine a definite course of action which will produce the maximum economic returns and family satisfactions, (c) put plans into effect as rapidly as feasible, and (d) adjust them wisely as circumstances warrant.

In this approach, the family, the farm, and the home are the unit. Many fields of subject matter are involved. In contrast, extension work is usually organized around specific subject matter and the people who are particularly interested in it.

The objectives of the farm and home unit approach are to speed up the application of research results, to gear production to the market potential, to help agriculture become more efficient, and to make farm life more satisfying. Its objectives for the farm family are to help the family improve its decision-making ability, to choose a course of action best suited to its needs, desires, and resources, and to carry out this course of action in an efficient and orderly manner.

What is back of the emphasis on the farm and home unit approach at this time?

The method is not new. It is only the particular emphasis and support at this time that is new.

1. There are many families you and I know who are good managers. They are so self-motivated that extension workers are besieged for new information and many times they are at the door of the research worker to get a report before the findings have been tested adequately by researchers. They have the ability to take separate pieces of subject-matter information and put them together into an efficient farm and home blueprint for themselves.

2. There are States that used the Farm and Home Development method with families before July 1, 1954. Agents have assisted families in this manner ever since the first agent rode horseback up and down the mud roads, stopping overnight with a family. More recently there has been the so-called Farm Management Project. In most cases only the farmer

was involved. The project, however, has been a good forerunner for the more complete Farm and Home Approach.

3. Couples have been brought together in extension schools without the individual assistance on location.

4. Unit Test Demonstrations using fertilizer from T.V.A. as a catalytic agent have been used to demonstrate combinations of practices. Frequently the farm and home as a unit was and is involved. The importance of bringing the homemaker into decision making has often been demonstrated.

5. Agents are receiving more and more requests to assist beginning farmers. In this case the farm and home unit approach is a must. This is a potent group because 80,000 new farmers are needed each year for replacements. Most are young farm couples.

6. There is an evolving educational philosophy in this country that is setting a favorable climate in which the unit approach may take root and grow. Educational principles tell us that the most effective way of teaching for most people is not a matter of putting before them a lot of single practices. The emphasis today in education is on integration, which carries the responsibility of the teacher one step farther. Educational assistance in decision making for the individual or the farm family is fully as important as disseminating the facts of research.

7. Mass methods of disseminating information have their place and will continue. As an economist will say, timeliness is an important factor in efficient farming. Likewise, timeliness is important in a shift in emphasis in methods. Methods should fit the need at a particular time and in a particular situation.

a. The purpose of the Smith-Lever Act says "In order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics and to encourage application of the same."

Diffusing means to pour out and spread. We have done a good job of pouring out and spreading. Have we done enough in encouraging application or motivating? Now is the time to emphasize methods of motivating in order to shorten the time lag between research findings and their application.

b. Another need indicating timeliness is centered in the problem facing farmers today in a period of high capital investments and production costs and relatively lower prices for farm products. New research indicating the desirability of a new practice has to be weighed in relation to other practices and to a particular farmer on a particular farm. An understanding by the farmer and his family is essential as to how such practices will have to be integrated with a whole sequence of other operations on the farm and often in the home. Such decision making is often a matter of timing.

c. One of the characteristics of farming is the inseparable relationship between the farm and the home. A complete management program requires educational assistance to improve living in addition to making a living. Now is the time to broaden the educational base with the farm family in an integrated manner.

8. Agricultural leadership recognizing all of the factors just recited is saying that a greatly expanded program of research and education is needed. The emphasis is upon an expansion rather than replacement of other important units and methods. Three major points of expansion are marketing, public affairs, and the farm and home unit approach. There are others. These convictions were translated into additional financial support last year by Congress, State legislatures and county appropriating bodies. Additional finances were translated into additional staff, either to work directly with this approach or to relieve the more experienced agents in order that they might concentrate more time and effort on this approach.

WISCONSIN FARM AND HOME DEVELOPMENT STUDY

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Somehow or other I became more or less responsible for the project that we got under way. You may be interested in some of the administrative aspects of setting up such a study. With the guidance of the Extension Studies Committee, we set up the project with the main responsibility in the Department of Rural Sociology. Funds from both the Experiment Station and the Extension Service contributed to this study. The total budget was \$15,000, excluding my own salary. A full-time project assistant assumed the main responsibility for preparing the questionnaires, planning the field work, and following through on it. This person is a graduate assistant working on his Ph.D. He is now involved in preparing a report of the benchmark study.

The objectives of this study are in keeping with some which have been discussed previously. One purpose was to find out something about the kind of families which would be involved in the program. Not knowing who would be ultimately involved, we designed a random sample. By this means we obtained a cross section of families to provide information in what was called the preplanning stage by Dr. Knutson yesterday. It was not entirely the preplanning stage since the operations were partially under way.

The second major objective was to evaluate Farm and Home Development by first, a benchmark and, later, follow-up studies. The third was to evaluate Farm and Home Development by attitudes of those cooperating with it, including attitudes of Extension agents, attitudes of Agricultural Committee members, and possibly by others in the county. The latter might be called the study of the operational phase. In other words, you can evaluate on the basis of a benchmark in the beginning, and a study later. This does not tell anything about means or methods. You get progress as Dr. Knutson indicated. Means or methods are important but were not included in the benchmark studies. They will be included at later stages of the studies.

Now, as to the procedure of the benchmark study, which was the first phase, we chose six counties from among 26 counties designated as counties in which an additional agent would be employed to do Farm and Home Development work. The 6 counties were chosen by selecting 2 at random from 3 groupings of the 26 counties.

At the second selection stage, we chose 3 to 6 townships within each county to make up the estimated total of 600 families in the benchmark study. This wasn't exactly 100 families per county because it varied with the size of the county with respect to farm population. We chose townships because it simplified and reduced the cost of the study. A third step was to locate all the families within these townships which met the following three criteria agreed upon by the planning committee: (1) had started farming since 1944; (2) head was under 45 years of age; (3) half or more whose gross income was from farming in 1953. This omitted some of the part-time or residential farm group.

We located the families by contacting township officials, such as the tax assessor who, within the year, had contacted almost all families in the county. We spotted them on maps so the interviewers would know where to go. When the interviewer made the contact, he again checked on these three criteria because the town officials often were not certain whether they fitted or not. We interviewed the husband and wife of each family. Interviews for the most part lasted about 75 to 90 minutes, with some as long as two hours.

Two interviewers were female and five were male. Apparently the girls did just as good a job as the men, including getting the farm practice data, and certainly they did as well, if not better, with the women's part. The main factor is quality of interviewer instruction.

Data obtained were essentially of 9 main kinds. General characteristics of the family was one type. This consisted of identification characteristics that you get in almost any study. Items included were age and education of both husband and wife, size of family, the length of farming experience, size and type of farm, tenure, and the amount of assistance obtained by the family in getting started in farming. We checked on assistance from parents particularly - assistance in the way of funds or other types of help.

The second type was information about the adoption of 17 farm practices and 17 home or family living practices. We tried to include a wide range of practices generally applicable to all farms and all types of farming. This is difficult to do; it's simpler when you take only dairying or beef farming. It is easier with home practices because more of the home practices are applicable to all families in all parts of the State. Health, nutrition, family business and records items were included.

The degree of mechanization was the third type of data. Besides age and size of different machines owned, to estimate net worth figures, the fuel used and electricity consumed were obtained to provide measures of mechanization.

The productivity indices and gross farm income to the nearest thousand dollars was the fourth type of item. This is an estimate of the family within approximately \$500 of what they made in the past year. The milk production per cow was obtained from all dairy farmers.

The fifth type was organization of the farm business, including net worth. The use of credit and the major types of enterprises were arrived at, item by item, to give an overall estimate. We checked on the extent to which they have used credit for the purchase of land, capital, and equipment. As you well know, this certainly is not a complete indication of farm organization.

Sixth, were conceptions of problems of farming and homemaking and the areas in which Extension should be most concerned. These were separate - the conception of the areas of farming and homemaking in which Extension should be most concerned and then of those areas in which the families themselves would like some additional information, if it could be provided.

The seventh kind of item was the contact with Extension within the past 2 years, including participation in Homemakers clubs, and several questions about the contacts for information on new things in farming. We didn't ask about the contacts for homemaking information, which might have been done.

Eighth; participation and leadership in community affairs, such as community, church, farm organizations, and other activities.

Ninth; level of living, which is essentially the enumeration of items which the family had in their home. A few other items were added that are not so important in the evaluation study.

The follow-up study, as we see it now, depends upon several circumstances that are yet to be worked out. We will need to select and interview a reasonably homogeneous group of families from among those cooperating in the unit approach to make a comparative before-and-after study. With wide differences in the length of farming experience, in educational level, etc., it will be difficult to tell what you have - how much was due to the extension effort and how much was due to other factors. It appears that eliminating at least some of the extremes is necessary. Likely, not many families among these 636 will be enlisting in the program, so we will have to expand the base of the cooperating group. Then we will have something like comparable control and the cooperating groups. We hope to end up with something like 200 in the group that cooperated fairly extensively with the extension approach and 300 to 400 that will be in the control group.

The control groups likely will be of two types. One, a control group within the counties where intensive work is being done, composed of families who are not involved. The second control group will be selected in about 3 counties not cooperating at present. The feeling is that whether or not the families are involved directly in the program in counties emphasizing this approach, there is likely to be some influence upon them, so that we need another group in counties not emphasizing this work.

We planned to interview both the control and the cooperating families about 2 years after the program is in operation and then 4 years later. One reason for that was mentioned by Mr. Goodsell yesterday - that changes occur over a time and these changes are not all in a straight line and are not all uniform. Quite a change might occur in the first 2 years which would not show up in the later 2 years. It may not be possible to take into account changes in price level or changes in conditions other than those in which the program itself is concerned.

Both the first and second follow-up studies will include additional information over that obtained in the benchmark. At this point information about attitudes is to be obtained; particularly the cooperators' attitudes toward the program itself. What contacts have you had with the county agent? What kind of help have you received? Is this the kind of help that you wanted? How do you think it could be improved? This, we hope, would get at some of the operating problems. At a later stage we plan to check on the Extension agents and members of the Agricultural Committee - five men elected or appointed to represent the county with

respect to the Extension program. They are in a key position to know something about the implications of the program for both families and the county as a whole. We plan to check on how the local politicians see it.

You are already aware of some of the research design problems involved, but I'll enumerate those that I jotted down:

First: Measuring the change in income, level of living, productivity, etc. that is due to the extension effort. Some of these, such as income and level of living changes, anyhow. How much of the change is the normal overall change and how much is due to Extension? The nature and the selection of control groups are important factors in whether or not you can take that into account.

Second: Are the changes within the program itself? We made a study in the TVA area to find out the influence of the TVA program upon adoption of improved farm practices. Changes in personnel and changes in regulations of the TVA fertilizer program were the biggest problems we had. It was difficult to say that the group of cooperators started out here, and 4 years later here's where they came out. We had people coming in, counties coming in, people dropping out, so there was not a complete set of families in during this period of time. The two Wisconsin follow-up studies are a partial attempt to take into account this kind of change.

Third: Obtaining the in-put data - the data on the effort of the Extension Service itself. What is the difference between Farm and Home Unit Approach and regular Extension work? Some say we've got to have specific measures of the contacts, the influences that are operating and how frequent they are. What goes on in the farm contact that doesn't go on in the formal meeting? This is part of the cost or in-put of this approach.

Fourth: Assessing the long-term effect upon these families. As Dr. Knutson pointed out yesterday, someone's conception of heaven is a place where you know the effect of what you did. I might add that it might also be knowing whether or not the effect was a good one. If the objectives Mr. Croy has listed here are the ones which are essential, how can you determine that in a period of two, or three, or four years?

One problem is setting up the measures for it, and the second is to assess the differences which may not show up very much within a short period of time. Then another is getting at the more intangible outcomes. We have discussed at one time that people are motivated to change because of their values, because of attitudes, their goals, and so on. If that assumption is true, then changing people's attitudes and goals is a part of this approach. How do you measure these things? How do you know you've got the right ones when you do get them? These problems are not easy to solve.

Then the final problem is that of providing a continuous record - the time sequence, so to speak. It may be important to have continuing records of the families, records which they keep or records which the agents keep.

Peoples' indications of interests do not necessarily indicate that people do not need help or that they will not accept help in the area of management. Their conception of what the Extension Service does, has done, or can do for them, is not identified with managing the business and management in the home as indicated by the benchmark data. If that assumption is correct, then one problem is that of educating the people that you can and do have a role to perform in the area of management and that you can do this better than someone else, or at least sufficiently well to justify their participation. In the benchmark study we asked them to rate 10 different areas in which they thought Extension should be most concerned. Usually, the interviewer gave them the list to check, and in other cases read it off to them when they didn't seem to take to this idea. The order of mention was as follows: Crop diseases and insect damage, crop production, soil conservation, marketing and prices, livestock and poultry diseases, livestock quality and production, managing the farm business, farm buildings and equipment, farm forestry, and community services, for which we had in parenthesis - recreation, health, safety, etc.

We followed that up with the question "On which of these would you be interested in obtaining information, if there were the opportunity to obtain it?" We didn't say that they were going to get it, because that sometimes is expected. The ranking was similar to that which I just gave you.

Another question was "What is your preference as to the manner in which you would like to receive this information?" We gave three choices here; pamphlets and reading material, personal visits of the agent, or meetings held in the locality. We asked this of the women also. One-third of the men gave as their choice pamphlets or reading material; one-fourth gave personal visits of the agent. Remember that these responses were primarily about things such as diseases and insect damage, crop production, etc. About one-fifth of them chose meetings in the locality, with a few choosing a combination of these.

Of the women, fifty-five percent chose pamphlets or other reading material. Only nine percent chose personal visits of the home agent; eighteen percent chose meetings held in the locality. This reflects the greater emphasis upon meetings by the home agents.

I have some figures here on the home areas that the women might be interested in. They ranked in this order: family health and nutrition; child development (I think this reflects recent emphasis in the Wisconsin program); community services (health, recreation, and that sort of thing); family relations; clothing construction; buying for the household (money management essentially), and home furnishings. This was essentially the same order in which they requested information except that clothing took precedence over family relations. Perhaps this implies "other people ought to learn how to handle their kids, but I don't need that myself." Perhaps the relatively small number of responses about family relations reflects the fact that we have not had much of that in the Extension program.

EXPERIMENTAL TOWNSHIP PROGRAMS IN MICHIGAN

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What the Program Is

The Michigan Township Program is an intensive extension program which is being conducted on an experimental basis in five townships over a five-year period.

The broad objective of the experiment is to find out whether or not an intensive extension approach operating in a small political subdivision is sufficiently productive to justify the additional cost. Other objectives were stated in terms of:

1. Increasing agricultural output.
2. Increasing farm family incomes.
3. Improving the standard of living of farm families.
4. Speeding up the rate of adoption of scientific farm practices.

The townships were selected and the township agents hired and started on the job between July 1953 and January 1954. The townships were chosen to obtain geographical distribution and to obtain representation of the various types of farming in Michigan. The fact that the farm people had had little contact with extension was an important criterion in the selection of two of the townships. The number of farmers involved in each of the township experimental areas varies from 50 to 200. This compares with from 400 to 800 farms per county in the northern part of the lower peninsula of Michigan, and from 2,000 to 4,500 in southern Michigan where most of our agriculture is located.

The five township agents had all had previous experience as county agricultural agents. They all have a township extension advisory board made up of five or seven farmer members elected by the farmers in their township. These farmer boards have (1) helped the township agents get acquainted with the local people and agriculture, (2) arranged for local financing, (3) formed committees to promote various phases of the township program, and (4) advised the township agent as to which activities would be most helpful to the local people. In the extension administrative setup, the township agents are administered by a project coordinator (who is now an assistant director of extension) with the help of the district supervisors. Since July 1954, a farm management extension specialist has been assigned part time to assist the township agents with program and subject matter. The experiment is financed in part by a grant from the Kellogg Foundation.

While the agents conduct some group work sessions and make some use of the mass media, the experiment consists primarily of an individual on-the-farm approach.

The Research

When the program was set up, provisions were made for a half-time position for program analysis to evaluate the effectiveness of the program. This job was assigned to me, and arrangements were made to bring in a graduate assistant each year to help with the research. In setting up the research, I have had help from a number of sources, of which I would like to mention:

1. Our rural sociologists at Michigan State College.
2. J. L. Matthews, Division of Extension Research and Training.
3. J. P. Leagan's concept of the Educational Objectives of the Extension Service.

I took as my assignment the measurement of the degree to which the objectives of the program were met during the five-year experimental period. We set down all of the categories of changes which might fall within the broad objectives of the program. The categories outlined were as follows:

1. Financial progress of the farm families in the townships.
2. Changes in economic efficiency on the farms in the townships.
3. Changes in level of living of the farm families.
4. Changes in family objectives.
5. Changes in attitudes of the farm people--such as their attitudes toward Extension, toward the use of credit, toward risk and security.
6. Changes in volume of production.
7. Changes in organization of the farm business.
8. Changes in farm practices.
9. Changes in participation in Extension and other formal and informal organizations and activities.
10. Changes in farmers' levels of knowledge.
11. Changes in ability to apply knowledge to the solution of practical farm problems or managerial ability.
12. Changes in community welfare.

We further classified the types of changes under the headings of "what" and "why". That is, those which would explain what had happened because of the township program, and secondly, those which would explain why the changes had been made. An example of the first type would be that deflated net farm income had increased, say, 25%. An example of "why" might be that family objectives had changed, which raises the whole subject of motivation. On another level, an explanation of "why" might be that the farmer used more credit, or followed a soil-building program.

Our first step in the research was to establish benchmarks which would show where the farmers were at the beginning of the experiment. A sample of farmers was surveyed in each area to obtain information which permitted us to establish benchmarks for measuring changes in:

1. Volume of production.
2. Efficiency in production.
3. Farm organization.
4. Net earnings.
5. Net worth.

The samples were made up of approximately 40 farmers in each of the five townships, or a total of about 200. Since there were certain important economic relationships which we wanted to study, we decided that it was necessary to make our sample homogeneous by farm types within the township areas. We surveyed these farms by personal interview as their situations were in 1953. Our survey form included all of the information that is commonly obtained in farm account projects, all of the information needed for Cobb-Douglas analysis, plus a net worth statement. We normalized crop yields by getting averages for the preceding three years. We obtained nonfarm income so as to have a complete picture of the resources available to carry out a farm and home development program.

A study of farm practices was made by Jack Bittner, one of the graduate assistants who has worked with me on the program. His sample included every farmer in the experimental townships. His survey was made through a mail questionnaire which included 101 farm practices, including farm management and marketing practices.

The above surveys will give us benchmark data to tell us where the farmers were at the beginning of the program. By making similar surveys at the end of the five-year experimental period, we feel confident that we can say what has happened on the experimental farms during the five years. To get a measurement of how much of the change, if any, should be attributed to the township program, we have set up control groups to provide a basis of comparison. We selected the control areas from which the control farmers were chosen by matching the control area with the experimental area on the basis of:

1. Markets.
2. Soil associations.
3. Types of farming.
4. Ethnic backgrounds of the farm people.
5. County Extension programs.
 - a. History of cooperation with Extension in the areas.
 - b. Current Extension programs.
 - c. Distance from the county extension office.
 - d. Availability of meeting places.
6. Proximity to large cities.

After selecting the control areas, we proceeded to select the control farmers. We did this by getting fairly detailed information on from 80 to 125 farmers in each control area. From this group, we selected about 40 to include in our survey, using a pairing procedure which was suggested to us by studying the report of Dr. Tremblay's study of the farm planning endeavor in Vermont. We paired the experimental and the control farmers as closely as possible on the basis of age of the farm operator, labor force, total acres, tillable acres, number of cows (where relevant), and amount of machinery.

Our extension administrators have agreed that the agents assigned to our state-wide farm and home development program will work in neither the experimental nor the control areas during the duration of the five-year experiment.

In addition to the two types of surveys just mentioned, we have other plans for evaluating the program. The township agents' monthly and annual reports will serve as a useful tool in the evaluation process. Each of the township agents keeps a file on each farmer he works with in the township which will give us valuable information. From information obtained in our surveys and provided by the township agent, we will be in position to make case-study reports.

We are developing plans to study changes in farmers' participation in Extension activities and in formal and informal organizations during the experimental period.

The Soil Science Department, in cooperation with the Soil Conservation Service, obtained a record of land use on each farm in the five experimental areas during 1953 and 1954. We intend to analyze this information and to follow through to discover shifts in land use, if any, during the five-year period and to study the economic and other implications. Also, representatives of the National Agricultural Communications Project, which is located at East Lansing, assisted the Soil Science Department in preparing a soil survey report in popularized form for one of the experimental townships. They are going to study the effectiveness from a communications standpoint of this type of a report.

From our research, measures will be available at the end of the experiment to show the benefit which has been derived from the program. We have also gathered data on the costs of operating the program during the first two years. These costs include the costs of maintaining the agents in the townships, value of the administrators' time in supervising the program, and value of extension specialists' time and maintenance devoted to assisting the township agents. The cost data will be kept current so that the total costs will be available at the end of the experiment and can be compared with the benefits.

REPORT OF WORK GROUP A-1

Research Designed to Measure the Effectiveness of the Farm and Home Unit Approach Over a Period of Years.

The discussion in Work Group A-1 revolved around research projects related to farm and home development now under way or contemplated in the near future in the following States: Iowa, Michigan, New York, North Carolina, Texas and Wisconsin. ^{1/} In general, the core of the discussion was concerned with research objectives, research design, and data to be collected. A brief comparison of the projects follows.

I. Projects now under way or contemplated in farm and home development.

A. Objectives.

The major objective of all projects is to determine the relative effectiveness of an intensive extension program, usually called the farm and home development approach, and the more extensive extension method now in use.

In addition to the major objectives agreed upon by all States, a number of other objectives were stated by one or more States:

1. To study the results of different ways of doing farm and home development in terms of the methods of selecting the groups with which to work, different educational methods used, and different staff organization.
2. To evaluate the farm and home development program by the attitudes of those cooperating, extension workers, and county agricultural advisory committees.
3. To get input-output data to determine the level of optimum return for money expended.

B. Research design.

There was general agreement on research design on two points:

1. There was to be a study and restudy -- benchmark with follow-up studies at intervals.
2. There would be some kind of control in the experiment.

In some cases control would be carried out by matching individuals or areas on selected criteria. In other cases a larger random sample of individuals or areas would be drawn in the basic benchmark phase with subsamples being drawn from the larger sample as the criteria of control became better defined in terms of the developing objectives of the program.

^{1/} Research projects from each of these States will not be discussed individually in the body of this report. A summary of each State's project appears at the end of this report. (Pages 70-86)

C. Data to be collected.

There was general agreement that the following categories of data would be collected

1. Organization of farm business, financial structure and net worth.
2. Net income and level of living.
3. Volume of production and productive efficiency.
4. Farm and home practices.
5. Basis and method of making farm and home management decisions.
6. Attitudes, values and goals of farm family as they related to family living and farm and home management.
7. Participation and leadership in community affairs.

II. Some problems and considerations.

A. Purpose of research in farm and home development.

It is recognized that there may be several reasons for doing research in farm and home development:

1. To demonstrate the worth of farm and home development and the expenditures for farm and home development to the public administrators and to Congress.
2. To provide data upon which to plan the ends, means, and make process evaluation for direction of the program as it moves along. This should provide for constant evaluation, direction, worker and participant satisfaction and feeling of accomplishment.
3. To evaluate the program in terms of family living and farm and home management.
4. To do basic research -- to account for the "why" as well as the "what."

The work group believes that in many cases these objectives are complimentary. There may be cases where they will be competitive in terms of research design, analysis and emphasis. The real challenge is that of communication, mutual understanding and working together on the part of the administrators, the action workers and those responsible for the research so that the ends of all and the program will be best served by their cooperative action.

B. Uniform design

A review of the projects shows some similarity of design. However, complete uniformity of design does not seem feasible for several reasons, including:

1. The first phases of some of the projects have been completed.
2. The farm and home development philosophy and action programs differ from State to State.
3. Uniform design does not necessarily produce the greatest amount of sound research for money expended.

C. Analysis of data

There seems to be general agreement on what we are attempting to measure. There does not seem to be agreement on how we are going to analyze the data.

D. Satisfactory control of variables in experimental design. This is a real problem from several points of view:

1. Basis of selection of original control.
2. Diffusion from treated to control groups.
3. Differences and changes in extension personnel.
4. Mobility of individuals in treated and control groups.

E. Use of research

Will the research findings really be used to help plan and direct the farm and home development program? Caution must be used so that the feedback will not upset the program.

F. We will have much "what" data. How much "why" data will we have?

III. Some suggestions on methodology

- A. Have county workers maintain a file on each family on the program. Include in the file such items as number of contacts, who initiated the contacts, subject matter covered, level of family interest, changes in goals, farm and home practices adopted, etc. This should provide valuable data for process analysis.
- B. Use participant observer (trained local resident) in county to study program and families in process.

- C. A possible analysis would be a comparison of the "high change" and "low change" families in the program and an attempt to account for the differential rate of change.
- D. Utilize the follow-up study to obtain data on what has been attempted in the program and what approaches and methods have brought about change. It should be possible to account for change -- answer some of the "why" questions.

IV. Some areas where additional research emphasis is needed.

- A. There seems to be a unique opportunity to study values and goals in a dynamic setting. It should be possible to observe the process of setting goals, making decisions in relation to the goals, acting in relation to the decision, seeing the consequences of the decisions and actions and subsequent modification of goals.
- B. The basis for and the ways that people make decisions.
- C. Methods of measuring level of living.
- D. Attitudes and opinions of county extension workers, supervisors, specialists, administrators and lay people toward the program over time.
- E. The patterns of social relations between county staff members and between staff members and families as they work together on farm and home development.

V. Committee recommendations.

- A. That there be periodic meetings, at least once a year, of those charged with the responsibility or concerned with the more basic research in extension to exchange ideas, consult on projects, delineate areas of needed research and integrate research so that the greatest total research product may be obtained for money expended.
- B. That each State send forward to the United States Department of Agriculture Extension Research and Training Division research projects, outlines, instruments and publications as they are developed and that these then be distributed by the Extension Research and Training Division to the several States engaged in extension research.

VI. General Summary.

- A. We have moved rapidly into a broad and in some areas rather superficial research mainly oriented at evaluation of farm and home development.
- B. In some cases basic research is a part of the original research design. How to get the most basic research out of the available data is a real challenge.

- C. As we move forward we need additional well-planned basic research on the farm and home development program.
- D. We should continue to expand general basic research in the social sciences; while this research will not be directly oriented at farm and home development the findings will of course apply to farm and home development.

COMMITTEE MEMBERS: F. L. Bates
George Beal (Secretary)
Stephen J. Brannen
Harold R. Capener
Edward O. Moe (Chairman)
James M. Nielson
Cecil A. Parker
J. Neil Raudabaugh (EF&T)
L. M. Vaughan
Eugene A. Wilkening

FARM AND HOME DEVELOPMENT STUDY IN WISCONSIN

A. TITLE: Social and Economic Aspects of a Farm and Home Development Program for Young Farm Families in Wisconsin.

B. INITIATION AND SUPERVISION OF STUDY:

1. Extension Studies Committee (R. C. Clark, Chairman) recommended that the Department of Rural Sociology assume major responsibility for the study.
2. Project drawn up and approved by Extension Director and Associate Director of Experiment Station, indicating contribution of each. Total budget of about 15,000 excluding salary of project leader (Wilkening).
3. Frederick Fliegel appointed as full-time project assistant to conduct field work and supervise analysis.

C. OBJECTIVES OF THE STUDY:

1. To analyze the characteristics, interests and certain attitudes of farm couples in the beginning stages of their farm and household operations.
2. To evaluate the farm and home development program through a benchmark and later follow-up study.
3. To evaluate the farm and home development program by attitudes of those cooperating, extension agents working with program, and county agricultural committee members.

D. PROCEDURE OF BENCHMARK STUDY:

1. Chose six counties out of 26 at random from within three State subdivisions based upon type of farming and level of living.
2. Chose three to six townships from within each county to make up the county's estimated proportion of a total of 600 families, an average of 100 per county.
3. Located families for interviewing through town (township) officials, which met the following criteria:
 - a. Had started farming since 1944.
 - b. Head was under 45 years of age.
 - c. Half or more of gross income from farming in 1953.
4. Interviewed both husband and wife of each family meeting criteria in 75 to 90 minute interviews. Two interviewers were female and four were male.

E. DATA OBTAINED IN THE BENCHMARK STUDY:

1. General characteristics: age, education, size of family, length of farming experience, size of farm, type of farm, tenure and assistance received from parents.
2. Adoption of seventeen different farm practices and seventeen family business, health and food items.
3. Degree of mechanization: machinery owned, fuel used and electricity consumed.
4. Productivity of farm: gross farm income to nearest \$1,000 and milk production per cow.
5. Organization of farm business: net worth, nature of assets and use of credit.
6. Conceptions of problems of farming and in homemaking, of areas with which extension should be most concerned and of areas in which information was desired.
7. Contact with extension in past two years and contacts for information about new things in farming.
8. Participation and leadership in community affairs.
9. Level of living.

F. THE FOLLOW-UP STUDIES.

1. Select and interview reasonably homogeneous group of families from among those cooperating with respect to type of farming, size of farm, length of farming experience and educational level of husband. By eliminating 20 to 25 percent of the families, a total of 180 to 200 would remain.
2. Select the control group from among those interviewed in the cooperating counties of 250 to 300. These would compare statistically with the cooperating families on the criteria given above.
3. Interview the cooperating and the control families after two and four years, to obtain comparable data as in the benchmark study. Additional information will be obtained on attitudes of the families toward the kinds of assistance provided.
4. All agents spending most of the time in this phase of extension work will be interviewed after two and four years.
5. All agricultural committee members in the representative sample of counties cooperating with the program will be interviewed after four years.

EXPERIMENTAL TOWNSHIP EXTENSION PROGRAM IN MICHIGAN

- A. TITLE: Research on the Experimental Township Program in Michigan.
- B. SUPERVISION OF STUDY: James M. Nielson, Michigan State College.
- C. OBJECTIVES: The broad objective of the experiment is to find out whether or not an intensive extension approach, operating in a small political subdivision, is sufficiently productive to justify the additional cost. Other objectives were stated in terms of:
1. Increasing agricultural output.
 2. Increasing farm family incomes.
 3. Improving the standard of living of farm families.
 4. Speeding up the rate of adoption of scientific farm practices.
- D. PROCEDURE: The townships were chosen to obtain geographical distribution and to obtain representation of the various types of farming in Michigan. The fact that the farm people had had little contact with extension was an important criterion in the selection of two of the townships. The number of farmers involved in each of the township experimental areas varies from 50 to 200. This compares with from 400 to 800 farms per county in the northern part of the lower peninsula of Michigan, and from 2,000 to 4,500 in southern Michigan where most of our agriculture is located. The samples were made up of approximately 40 farmers in each of the five townships, or a total of about 200. Since there were certain important economic relationships which we wanted to study, we decided that it was necessary to make our sample homogeneous by farm types within the township areas.
- To get a measurement of how much of the change, if any, should be attributed to the township program, we have set up control groups to provide a basis of comparison. We selected the control areas from which the control farmers were chosen by matching the control area with the experimental area on the basis of:
1. Markets
 2. Soil associations
 3. Types of farming
 4. County Extension programs
 - a. History of cooperation with Extension in the areas

- b. Current Extension programs
- c. Distance from the county extension office
- d. Availability of meeting places

4. Proximity to large cities

After selecting the control areas, we proceeded to select the control farmers. We did this by getting fairly detailed information on from 80 to 125 farmers in each control area. From this group we selected about 40 to include in our survey, using a pairing procedure which was suggested to us by studying the report of Dr. Tremblay's study of the farm planning endeavor in Vermont. We paired the experimental and the control farmers as closely as possible on the basis of age of the farm operator, labor force, total acres, tillable acres, number of cows (where relevant), and amount of machinery.

Our extension administrators have agreed that the agents assigned to our state-wide farm and home development program will work in neither the experimental nor the control areas during the duration of the five-year experiment.

E. DATA OBTAINED: A sample of farmers was surveyed in each area to obtain information to establish benchmarks for measuring changes in:

- 1. Volume of production
- 2. Efficiency in production
- 3. Farm organization
- 4. Net earnings
- 5. Net worth

We surveyed these farms by personal interview as their situations were in 1953. Our survey form included all of the information that is commonly obtained in farm account projects, all of the information needed for Cobb-Douglas analysis, plus a net worth statement. We normalized crop yields by getting averages for the preceding three years. We obtained nonfarm income so as to have a complete picture of the resources available to carry out a farm and home development program.

A study of farm practices was made by Jack Bittner, one of the graduate assistants who has worked with me on the program. His sample included every farmer in the experimental townships. His survey was made through a mail questionnaire which included 101

farm practices, including farm management
and marketing practices.

F. FOLLOW-UP STUDIES: By making similar surveys at the end of the five-year experimental period, we feel confident that we can say what has happened on the experimental farms during the five years. .

OUTLINE FOR A FIVE-YEAR EVALUATION RESEARCH PROJECT
IN THE FARM AND HOME UNIT APPROACH IN IOWA

A. TITLE OR PROJECT: Evaluation of Iowa Extension Farm Family Development Program.

B. INITIATION AND SUPERVISION OF STUDY:

1. Interdisciplinary committee for research on farm and home development. (Dr. George Beal, Rural Sociology, Chairman)
2. Project drawn up and approved by associate director of experiment station. Tentative budget, about \$10,000 excluding salary of committee members.
3. Project leader for initial benchmark study - Norman Strand, Associate Professor, Department of Statistics, Iowa State College.

C. OBJECTIVES OF THE PROPOSED RESEARCH PROJECT:

1. To determine the relative effectiveness of the farm and home development approach compared with the more extensive method now in use.
2. To study the results of different ways of doing farm and home development.
 - a. Methods of selecting the groups with which to work.
 - b. Different educational methods used with the groups.
 - c. Different organization of the professional staff.

D. TENTATIVE RESEARCH DESIGN AND PROCEDURE:

1. Stratify Iowa counties by type of farming areas and by probability of immediate involvement in the farm and home development program.
2. Random selection of one county out of each strata.
3. Random selection of two communities within each of these counties.
4. Random sample of young farm families 35 years and under, to work with on farm and home development, will be selected.
5. Control counties selected by same procedure.
6. Both husband and wife will be interviewed by field schedule.

E. DATA TO BE COLLECTED IN THE BENCHMARK STUDY:

1. Families
 - a. Current farm and home practices and level of living.

- b. Current volume of production and productive efficiency.
- c. Current organization of farm business, financial structure and credit position.
- d. Level of income and financial progress.
- e. Basis and method of making farm and home management decisions.
 - (1) Role and nature of decision making.
 - (2) Sources of information.
 - (3) Current role of Extension in providing information and helping make decisions.
- f. Inventory of attitudes, values and goals in relation to:
 - (1) Family.
 - (2) Household.
 - (3) Farm.
 - (4) Community.
 - (5) Farming as occupation.
- g. Social participation and leadership of family members in organizations and community affairs.

2. County Farm and Home Development Programs.

- a. Methods of selecting the groups with which to work.
- b. Different educational methods used with the groups.
- c. Different organization of the professional staff.

F. THE FOLLOW-UP STUDIES:

Follow-up studies are planned for 3 and 5 years with the above sample.

G. ADDITIONAL RESEARCH:

Above-mentioned studies are planned primarily to accomplish objective one under C. above. Additional studies will be developed to accomplish more specifically objective 2 under C. above.

RESEARCH PROJECT SUBMITTED
BY THE STATE OF NORTH CAROLINA

A. STUDY TITLE: An Evaluation of Experimental Intensive Extension Work in North Carolina.

B. OBJECTIVES:

The general objective of the project will be to evaluate the farm and home development approach to intensive extension work as a means of raising incomes, improving family living, developing the citizenship qualities of rural people, and of bringing about other desirable changes in agriculture and rural life. This general objective will be accomplished:

1. By a comparative evaluation of the intensive extension approach and the more extensive extension approach currently in use.
2. By a comparative evaluation of various ways of doing intensive extension work in order to determine the relative effectiveness of:
 - a. Using a staff of generalists as compared to using a staff of specialists.
 - b. Using different methods of selecting families for participation in the intensive program.
 - c. Using various methods of farm and home planning with participating families.
3. By collecting and analyzing "input-out-put" or "cost-benefit" data in order to determine the degree of intensity which will yield the optimum return on the investment in extension education.

C. RESEARCH DESIGN:

This study will be conducted in a sample of counties which are now employing intensive extension methods. Counties will be selected for the study so as to be representative of various approaches to intensive extension work. Within each county a sample of families who are participating in the intensive extension program will be selected to serve as an experimental group. A matching sample of families not participating in the intensive program will be drawn as a control group.

The study will be performed in three phases.

1. An initial evaluation.
2. A case record phase.

3. A final evaluation phase.

One county in each of the six extension districts plus one county in which intensive Negro farm and home development work is being done will be selected. Counties will be chosen on the basis of the following criteria:

- a. The kind of staff employed to do intensive extension work. (Some counties should use a staff of specialists and some a staff of generalists.)
- b. The methods used in selecting families for participation in the intensive program. (Different methods of selection should be included in the sample.)
- c. The methods of farm and home planning used with participating families. (Different methods of planning should be included in the sample.)
- d. The workload for extension agents in terms of the number of families served. (Different workloads should be included in the sample.)
- e. The race of the participating families. (Counties with both Negro and white programs should be included in the sample.)

Within each county selected, a sample of families participating in the program will be drawn so as to be representative of the following:

- a. Different farm sizes.
- b. Different family sizes.
- c. Different tenure statuses.
- d. Different types of farm enterprises.

A matching sample of nonparticipating families will be drawn to serve as a control group. In deciding on the size of sample, both in terms of counties and families and in working out the procedures for drawing the sample, the advice of The Institute of Statistics will be sought and their recommendations followed closely.

D. DATA TO BE OBTAINED:

The original benchmark study will gather data on the topics specified below:

1. Measures of Change. The dependent variable for the study will be "change or progress in raising family incomes, improving family living, developing citizenship and bringing about other

desirable changes in agriculture and rural life." In order to measure these changes instruments which will furnish criteria of change on a less abstract level will be developed. It is anticipated that measures will be created and used in the following areas:

- a. Income, both money and nonmoney.
- b. Farm organization.
- c. Productive efficiency.
- d. Attitudes toward farming and rural life.
- e. Levels and standards of living.
- f. Acceptance of improved farm and home practices.
- g. Expenditure patterns.
- h. Participation in organized groups and associations.
- i. Leadership qualities and managerial ability.

2. Data on extension organization and on the implementation of the intensive extension program: The independent variable in the study will be the farm and home development approach to intensive extension work as it is observed in the sample counties. Data on this approach will be gathered along with data concerning the regular extension organization in the county. Below are listed areas in which information will be collected concerning the independent variable:

- a. Data on the organization of the extension staff.
- b. Data on the characteristics of the intensive extension approach used in each county.
- c. Data on the operation or functioning of intensive extension work in each county.

3. Data on the conditions under which the program operates in each county:

In addition to the dependent and independent variables, certain other variables will influence the rate and type of change which will occur in the counties. These variables may be said to intervene between the dependent and independent variables in the sense that they influence the relationship between them. For convenience we can call them intervening variables.

At the present time at least four such variables can be identified. They must receive considerable research attention if we are to understand the changes which will be observed during the study period. They are:

- a. Characteristics of the farms on which members of the control and experiment groups live.
- b. Characteristics of the family; its composition and organization.
- c. Characteristics of the communities in which participants live.
- d. Characteristics of the county in which the program is operating.

E. THE CASE RECORD PHASE, THE CONTINUING STUDY OF CHANGE:

After the analysis of the benchmark study is completed the emphasis in the research operations will shift to the job of keeping an "analytical case record" of the intensive extension program in the sample counties.

F. THE FINAL EVALUATION PHASE:

During the last year of the project, a second benchmark study will be conducted. This study will supply data comparable to that gathered in the first benchmark study and will be compared with it.

FARM AND HOME DEVELOPMENT RESEARCH IN TEXAS

A. NAME OF PROJECT: Evaluation of Farm and Home Development.

B. PROJECT LEADER: J. D. Prewit, Associate Director

C. OBJECTIVES:

1. To determine the relative effectiveness of farm and home development method of working with farm families as compared with other extension methods currently in use.
2. To determine the relative effectiveness of using the regular county staff as compared with a special county staff to do farm and home development work.
3. To determine the influence of the farm and home development methods on nonparticipating families.

D. COUNTIES WHERE EVALUATION WORK WILL BE DONE:

Work will be done with random samples of farm and ranch families from 36 counties, namely:

- a. 12 counties with two associate agents.
- b. 12 counties with one associate agent.
- c. 12 with regular county staff but no associate agent.

E. PLAN OF OPERATION:

Counties worked with will depend largely on the indication of local interest and the availability of objective information. Two groups of families will be compared in each county, viz:

- a. families formally participating in the farm and home development method, and
- b. families not formally participating.

An attempt will be made to obtain representatives of these two groups with similar characteristics, such as soil types, size of farms, type of farm and home operations, capital structure, management ability, age of operators and size of families, and distance families live apart.

F. DATA TO BE OBTAINED:

Information on all families in the samples will be collected that will indicate:

1. Changes in farm and home practices, and changes in the level of living.

2. Changes in productive efficiency, including changes in volume of production.
3. Change in the organization of the farm business, financial structure, the use of credit.
4. Changes in income adjusted to price levels - the financial progress of the family.
5. Changes in ability to make sound farm and home management decisions based on knowledge of the factors involved and skill in analyzing alternative courses of action and their consequences.
6. Changes in the attitudes, values, and goals of farm families including attitudes toward agriculture, toward the role of science and their application in agriculture.
7. Changes in the families' participation in the community and its organizations, both farm and other organizations, and changes in the families' roles in the community, including the acceptance of leadership responsibility.
8. Changes effected in nonparticipating families as a result of their adopting methods and practices learned from participating neighbors.

EVALUATION RESEARCH PROJECT SUBMITTED BY
THE STATE OF NEW YORK

A. TITLE OF PROJECT: Evaluation of Farm and Home Unit Approach in Extension Work in New York State.

B. PERSONS IN CHARGE AND OTHERS:

Project Leader: Edward O. Moe

Associate Project Leader: Dorothy DeLany

Project Committee: Harold Feldman, O. F. Larson, C. E. Ramsey,
K. L. Robinson, B. F. Stanton, Jean Warren

C. OBJECTIVES:

1. To determine the relative effectiveness of the intensive county programs using the farm and home unit approach and the present more extensive programs.
2. To determine the relative effectiveness of various ways of doing Extension work with the farm and home unit approach.
3. To get basic input-output data or cost-benefit data in order to better determine the level of intensity at which optimum return is obtained from the investment in Extension education.
4. To develop some sound procedures and techniques for use in evaluating Extension educational programs and other adult educational programs.

D. COUNTIES TO BE INCLUDED IN STUDY:

The counties to be included in the study are:

Dutchess: An eastern New York county using the area approach, specifically a township program.

Oneida: A north central New York county using the community approach.

Cayuga: A central New York community following the individual approach.

Cattaraugus: A southern tier county following the individual approach in its program.

E. RESEARCH DESIGN AND PROCEDURES:

The major features of the research design are described below:

1. Some Basic Characteristics of the Research Design

The research program is designed to measure the effects or results of farm and home unit work over time. Four counties have been selected. (See under D.). The basis on which they were selected is indicated below. Two of the counties are following an area approach, and two an individual approach. In each case, scientifically selected control areas or families will be set up for comparison with the "test" families or areas. Particular attention will be given both to the size and representativeness of the controls. Adequate and firm benchmarks will be set up both for participating families and for the appropriate controls.

2. Selection of Counties

The four counties were selected on the basis of these factors:

(1) Type of program and approach to be used in carrying out the program; (2) past experience and present status of Extension work in county; (3) a rough geographical representation of the State; and (4) type of farming.

3. Selection of Participating Families or Areas

(a) In the two counties using the individual approach, the families are being selected by local executive committees and by Extension agents of the three departments on this basis:

- (1) Family gets most of its income from farming.
- (2) Need - Effects of price-cost squeeze on family.
- (3) Some preference for younger families, but not to exclude older ones.
- (4) Interest - Awareness of what the program is, what is involved.

(b) In the counties using the area and community approach, the test areas have been selected by the local executive committees and by the Extension agents on the basis of:

- (1) Agriculture - a principle or major activity in area.
- (2) Area or community somewhat typical of county, not the best areas, not the worst.
- (3) Need - Effects of present price-cost squeeze.

4. Information to be Collected

A variety of data will be needed to meet the objectives listed under C. Important areas of content will include:

- (a) Changes in the organization of the farm business, its financial structure, and the net worth of the farmer.
- (b) Changes in net income (and labor income) 1954-55.
1959-60 - adjusted to price level.

- (c) Changes in productive efficiency and changes in volume of production. Productivity indices will include production per man, per acre, per man-work unit, per animal unit.
- (d) Changes in farm and home practices, and changes in the family level of living.
- (e) Changes in the family's ability to make decisions, and in the way decisions are made with particular reference to the use of relevant information and the involvement of family members.
- (f) Changes in the attitudes, values, goals, of the farm family as they relate to the kinds of decisions the farm family makes. Attitudes toward agriculture, toward the role of science in agriculture, and toward the role of the Extension Service in scientific agricultural education would be particularly pertinent.
- (g) Changes in the family's participation in the organized life of the community, its role in the community, and the family's acceptance of the responsibilities of leadership.
- (h) Certain information about the family and its background in order to interpret the other data obtained.
- (i) Accurate and detailed records of procedures and methods used in the various county programs.
- (j) Input-output data or cost-benefit data for x number of farm families in the present and intensive county programs.

These data will be analyzed and interpreted in many different ways to meet objectives 1 through 4 under C.

5. Methods of Data Collection

The basic method of collecting data will be the personal interview survey. It will be supplemented by other research procedures such as: observation, participant observation, farm and home records of various types, case studies, and mail questionnaires.

6. The Selection of Control Families and Areas

A considered attempt will be made to match the control areas as carefully and as closely as possible with the participating families and areas. The factors listed above for selection of participants will also enter into the selection of the control families and areas. In addition, the following factors will also be considered in the counties where the individual approach is followed:

- (a) Type of farming
- (b) Size of farm business
- (c) Available capital
- (d) Soil types - land class
- (e) Market facilities
- (f) Level of education
- (g) Age
- (h) Ethnic background
- (i) Distance from Extension office
- (j) Interest in farm and home management
- (k) Present status of family in relation to farm and home unit program objectives

An attempt will be made to pair participating family and control family on motivation insofar as it is possible. At least, we will be aware of the crucial importance of this factor.

In the counties where the area or community approach is followed, the factors listed on the preceding page for the individual programs will be used insofar as they are relevant. In addition, the proximity of a city or large city, or the degree of urbanity, will be considered.

Evaluation in the Farm and Home Unit Approach.

I. Case Reports of Family Progress.

The case report is one way of measuring and reporting the progress of families. Certain information is essential in order to prepare a case report that describes the important kinds of changes made in the farming and homemaking situation of a particular family.

Some means of recording the information is needed; therefore, three materials are suggested for use in making case reports of family progress. The first is an outline for the case report. The second is a record form for recording the contacts made by all county extension workers with a family. A third material consists of suggestions as to the kinds of information that would be useful in the bench mark and cumulative records. These materials will need to be modified and adapted to fit the objectives and procedures of a particular State.

Outline for Case Report of Family Progress

1. Situational statement at the beginning of the year or of family participation. This would include facts related to each of the following broad areas:
 - a. Family census: background, health, education, and community participation.
 - b. Family business: records, insurance, savings, liabilities, assets, etc.
 - c. Agricultural production and family income.
 - d. Home facilities and management: housing, food and clothing, etc.
2. Family goals and objectives.
(Short and long run)
3. Plan for goal accomplishment.
(Short and long run)
4. Chronological story of action taken on the plan to achieve the goals and objectives.
(To be developed from the agents' cumulative record of contacts with the family.)
5. Summary of family achievements.
(Goals reached or progress made toward them.)
6. Significant factors of the case which made for success and/or failure, such as uniqueness of family, community, extension-family relationships, economics, etc.

Record of Contacts with Families

Name of family _____ Date _____

Address _____

Type of contact: Farm and home visit _____ Office call _____

Telephone _____ Letter _____ Group meeting _____

Personal conference (indicate where) _____

Purpose of the contact:

Who initiated the contact: Agent _____ Family member _____

Important problems discussed:

Specific alternatives suggested or recommendations made:

Information or literature supplied:

Response of the family including any expressions of their views about progress or lack of it:

Statement of new work or commitments to be undertaken by the family if any:

Agent's record of progress made since last contact, if any:

General comments, opinions or statements of others:

Suggested Outline for

Permanent Cumulative Record for Case Report

Bench mark inventory statement. Items to be included:

Name, address, community, farm location.

Farm

Acres owned _____ rented _____.

Acres by main groups.

Type of farm.

Acres of main crop, and normally expected yields.

Machinery and equipment (list main items).

Feeds and supplies (list main items).

Buildings (list and describe).

Livestock numbers by species and age classes.

Production per animal normally expected.

Machinery and equipment (list main items).

Household goods (list main items).

Amount of bonds and savings.

Amount of indebtedness on real estate.

Amount owed on all personal property.

Other indebtedness.

Home and Family

House:

Kind of construction.

Year built.

Number and kind of rooms.

Heating, water, lighting and sanitary systems.

Major furnishings and equipment.

Food and garden.

Communication and transportation.

Family Census:

Names, relationship, age, education.

Background - where born, farm reared, nationality, number of years married, etc.

Family business:

Do they keep - records of household expenditures? Yes _____ No _____

Remarks _____

- farm records? Yes _____ No _____ Remarks _____

Insurance - life insurance? - hospitalization insurance?

- accident insurance? - surgical insurance?

- fire insurance?

- other insurance?

Rental arrangements (if any) _____

Kind of help obtained in starting farming.

Family Census (continued)

Community organization participation (Extension and others).
Visiting pattern.

Goals for Farm and Family (Immediate and long time)

Production and accumulation of wealth.
Home, food and clothing.
Health and education.
Community, church, and recreation.

Plans for Goal Accomplishment

Immediate plans.
Long time plans.

II. Progress Evaluation of the Total Farm and Home Unit Approach.

Evaluation of progress in the total farm and home unit approach in a State involves, first, deciding on criteria, then the preparation of questions, based on that criteria, that can be used in looking at the important aspects of organization, policies, procedures and family participation. For the purpose of this report, a list of criteria was made and a form for checking on them was prepared. The form contains questions that relate to what seem to be the more important features of the farm and home unit approach.

The check form has three main parts that deal with organization, policy, and procedure. It is intended for use mainly by extension workers in checking their own efforts. It can be adapted for supervisory purposes. In any case, it will need to be modified or divided in line with criteria that are appropriate for each State or special purpose.

Criteria for Evaluating Farm and Home Development in Extension

Although the criteria listed below are accepted in some States, they are used here as examples and the basis for the evaluation device that follows and, therefore, are intended only as suggestions.

A. Organization.

1. a. A State committee made up of representatives of administration supervision, agriculture, home economics, 4-H and YMW, major subject-matter departments, and county extension staff members.

Role of this committee is to suggest policies, clientele, procedures, methods, and materials needed, including how they might be obtained or developed.

- b. Definite assignment of leadership for farm and home development within the State staff.

2. A county committee to advise with county staff on farm and home development, either the regular extension advisory committee or a special committee.

Role of the committee is to advise county extension staff on county policies, participation, clientele, procedures, and methods, and to help inform the people of the purposes and progress of the work.

3. A clear delineation and understanding of the role or functions of the State and county committees.
4. A clear delineation and understanding of the role or functions of staff members, including (a) county personnel, by positions; (b) specialists, by major subject-matter groups; (c) supervisors; (d) the director and staff assistants.

B. Policy.

1. A clear statement of the broad purposes and objectives of the farm and home unit approach in the State, and criteria that will be used to gauge their accomplishment.
2. An understanding of and acceptance of the broad purposes and specific objectives to be attained with farm families by (a) the State staff, (b) the county staff, (c) the State advisory committee, (d) the county advisory committees, and (e) people in counties and communities where farm and home development is being done.
3. A clear statement of the specific objectives to be sought with farm families, such as skill in decision making, ability to inventory resources, understanding of alternative choices, what families are expected to do and implementation of their plans.
4. A definite policy regarding farm and home development that is known and understood by the entire staff.

C. Procedures.

1. Teamwork on the part of the State and county extension staffs in planning, initiating, and carrying forward farm and home development. This implies joint, as well as separate, county and State planning.
2. Teaching methods and procedures appropriate and adequate to accomplish the objectives.
3. An adequate supply of needed practical teaching tools, devices, forms, and written materials.
4. Familiarity with, understanding of, and use by State and county staffs of appropriate teaching methods, procedures, tools, devices, forms, and materials.
5. Specific provisions for integrating extension work as it relates to the farm and home, recognizing that the farm and home unit approach consists of helping farm families to (a) identify and analyze effectively all their major farm and home situations and opportunities; (b) determine a definite course of action in relation thereto which will produce the maximum in terms of continuing economic returns and family satisfactions, (c) put such plans into effect as rapidly as feasible, and (d) adjust them wisely as circumstances warrant.
6. A clear statement and an understanding of the procedures for obtaining participation of farm families.
7. Adequate training of the State and county staffs in the farm and home development teaching process, including how to interview, counsel, make farm and home visits, and help families in sound decision making and action.

8. Provisions for the technical assistance and help to place the plan in operation.
9. Provisions for adjustment of farm and home plans to meet changing conditions.
10. Adequate plans for establishing bench marks and measuring progress of participating farm families.

FARM AND HOME DEVELOPMENT EVALUATION - CHECK FORM

(Based on Suggested Criteria)

A. Organization

1. Designated person to take leadership.

- a. Do you have a designated person to take leadership at the State level with authority and responsibility to act?

Yes _____ No _____

- b. Name of person designated _____ Title _____

- c. What is that person's authority and responsibility to act?

2. State farm and home advisory committee.

- a. Do you have a State farm and home development advisory committee?

Yes _____ No _____

- b. What is the composition of the committee?

Membership categories	Number of members by major interest areas			
	Agr.	Home Econ.	Joint Agr. and Home Econ.	Total
Extension administration				
Extension supervision				
4-H and YMW				
Subject-matter specialists				
County extension staff				
Lay leaders - others				
Total				

1. 2. c. How long has this committee been organized? _____
- d. How often does this committee meet? _____
- e. What are the strong points of the committee and its operation?
- _____
- f. What are the weaknesses of suggestions for improvement?
- _____

3. County farm and home development advisory committee

- a. Some States have county farm and home development advisory committees separate from their regular county extension program development committees.

What is the county committee pattern in your State?
(Please check (1), (2), or (3) in left hand column and indicate the number of counties.)

- _____ (1) Counties have farm and home development advisory committees separate from the county extension program development committees.

Number of counties _____

- _____ (2) Counties have combined extension program development and farm and home development committees.

Number of counties _____

- _____ (3) Some of each of the above patterns of organization.

Number of counties with separate committees _____

Number of counties with combined committees _____

4. 3. b. If your State has county farm and home development advisory committees separate from the county extension program development committees: What is the composition of the county farm and home development advisory committees?

Membership categories	Number of members by major interest areas			
	Agr.	Home Econ.	Joint Agr. and Home Econ.	Total
Farm operators				
Homemakers				
4-H and/or YMW and others				
Commercial farm and home interests				
Credit agencies				
County extension staff				
Other Federal and State farm and home agencies				
Others - (Specify)				
Total				

- (1) What are the strong points of these committees and their operation.

- (2) What are the weaknesses or suggestions for improvement of this pattern of county organization?

4. Delineation of duties and functions of farm and home development committees.

- a. Are the duties and functions of the State farm and home development advisory committee clearly defined?

Yes _____ No _____

A. 4. b. (If yes) What are the specific duties and functions of this advisory committee?

c. Are the farm and home development duties and functions of the county advisory committees or county extension program development committees clearly defined?

Yes _____ No _____

d. (If yes) What are the specific farm and home development duties and functions of this committee?

5. Delineation of the role or functions of State and county extension staff members.

a. Has there been a delineation of the role or functions of district agents or district extension supervisors in farm and home development?

Yes _____ No _____

b. (If yes to a.) What are their specific functions or responsibilities in farm and home development?

c. Has there been a delineation of the role or functions of subject-matter specialists in farm and home development?

Yes _____ No _____

d. (If yes to c. above) What are their specific functions or responsibilities in farm and home development?

B. Policy

1. Purposes and objectives.

a. Are the broad purposes and/or objectives of the farm and home development approach for the State clearly stated?

Yes _____ No _____

b. (If yes) Please state below these broad purposes and/or objectives.

B. 2. Understanding and acceptance of the purposes and objectives of the farm and home development approach.

How well are the broad purposes and objectives understood and accepted by the following groups? (Check below for each group in the appropriate column).

Groups	Degree of understanding and acceptance				
	Very good	Good	Acceptable	Need for some additional work	Need for much additional work
Administrative and supervisory staff					
4-H and YMW staff					
Specialists' staff					
County staff					
State advisory committee					
County advisory committee or program committee					

3. Statement of possible specific objectives to be attained with farm families.

a. Have the possible specific objectives to be attained with farm families through the farm and home development approach been clearly stated?

Yes _____ No _____

b. (If yes) Please state below the specific objectives to be attained.

- B. 4. Understanding of and acceptance of the specific objectives to be attained with farm families.

How well are the specific objectives to be attained with farm families understood and accepted by the following groups?
Check below for each group in the appropriate column.

Groups	Degree of understanding and acceptance				
	Very good	Good	Acceptable	Need for some additional work	Need for much additional work
Administrative and supervisory staff					
4-H and YMW staff					
Specialists staff					
County extension staff					
State farm and home development advisory committee					
County farm & home development advisory committee or extension program committee					

5. Policy regarding how to do farm and home development with farm families.

- a. Has a definite policy regarding how to do farm and home development with farm families been established?

Yes _____ No _____

- b. (If yes) Please state below the established policy regarding how to do farm and home development with farm families.

- c. Is the policy known and understood by the various groups listed in 4. above?

Yes _____ No _____

C. Procedures

1. Teamwork in planning, initiating, and carrying forward farm and home development work.

To what degree has teamwork been developed in planning, initiating, and carrying forward farm and home development work by the following groups? Check for each group in the appropriate column.

Groups	Degree of teamwork developed				
	Very good	Good	Acceptable	Need for some improvement	Need for much improvement
State staff					
County staff					
Joint county and State staff					

2. Teaching methods, techniques, and procedures appropriate and adequate to accomplish the objectives.

Indicate below the major general farm and home development objectives and the most important methods, techniques and/or procedures used to achieve each.

Major general objectives	Important methods, techniques and/or procedures used

C. 3. Provision for integrated farm and home planning and development.

List below the specific provisions which have been made to facilitate the integration of farm and home planning and cite the results achieved.

Provisions made for integration	Results achieved
State level:	
County level:	

4. Practical and adequate teaching tools, devices, forms and/or other written materials for integrated farm and home development.

a. List below the teaching tools, devices, forms, written materials, etc. developed for farm and home development, the purpose of each, and rate them according to how useful each has been in working with families in farm and home development.

Teaching tool, device, form, written materials, etc.	Purpose or objective of each tool or device	Usefulness				
		Very useful	Useful	Of acceptable use	Little use. Needs to be improved	No use. Needs to be improved.

- C. 4. b. List below needed teaching tools, devices, forms, written materials, etc. that need to be developed for farm and home development work. Indicate also the particular purpose each would serve.

Needed teaching tools, devices, forms, written materials, etc.

Purpose to be served.

5. Familiarity with, understanding of, and use by all extension staff members of appropriate teaching methods, procedures, tools, devices, forms and materials for farm and home development.

Indicate below your familiarity, understanding and/or use of each of the following teaching methods, procedures, tools, devices and materials for farm and home development. (Check appropriate column)

Teaching methods, procedures, tools, devices & materials	Familiarity, understanding and use			
	Familiar with but do not understand	Understand but have had no occasion to use	Understand but do not feel capable to use	Understand and have used.
(List to be developed by the State)				

6. Procedure for selection of participating farm families.

- a. Is there a clear statement of the procedure(s) for the selection of participating farm families?

Yes _____ No _____

- c. 6. b. (If yes) To what extent is this statement of procedure(s) understood by the following groups? (Check appropriate column for each group).

Groups	Degree of understanding				
	Very good	Good	Acceptable	Need for some additional work	Need for much additional work
Administrative and supervisory staff					
4-H and YMW staff					
Specialists staff					
County extension staff					
State farm and home development advisory committee					
County farm and home development advisory committee or extension program committee					

- c. (If yes to a.) State briefly the procedure(s) being used for the selection of participating farm families.
-

C. 7. Adequate training of extension staff in the teaching process for farm and home development.

Has training been given the extension staff in the teaching process for farm and home development, and to what extent has the training been adequate? (Check below)

Groups	Trained in the teaching process		Adequacy of training				
	Yes	No	Very good! job has been done	Good job has been done	Acceptable job has been done	Need for some additional training	Need for much additional training
Supervisory staff							
4-H and YMW staff							
Home economics specialists' staff							
Agriculture specialists' staff							
County staff (home economics only)							
County staff (agriculture only)							
County staff (complete)							

8. Plans for establishing bench marks and measuring progress.

- a. Have bench marks or plans for bench marks been established for work in farm and home development?

Yes _____ No _____

- b. (If yes to a.) Describe the plan used or to be used in establishing bench marks.

- c. Have techniques for measuring progress of participating farm families been developed?

Yes _____ No _____

- d. (If yes to c.) Describe the technique for measuring progress of participating farm families.

- c. (If yes to c.) How many counties are currently using this technique for measuring progress, and approximately how many families are involved?

Number of counties using _____

Total number of farm families involved _____

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REPORT OF WORK GROUP B

Program Accomplishment Research

This committee organized its discussion along the following lines:

A definition of program accomplishment research; the present situation regarding program evaluation; objectives; and planning and executing a program for better evaluation of accomplishments in Extension.

Definition of Program Accomplishment Research:

Program accomplishment research may be thought of as that process which seeks to determine the extent to which program objectives are being reached. More specifically, with reference to agricultural extension programs, it may be thought of as measuring desired changes to be expected in people with whom the Extension Service works. These changes may be in terms of:

Adoption of improved farming and homemaking practices, or changes in habits and skills as tangible evidence of changes.

Knowledge or information.

Understandings.

Interests and attitudes.

If evaluation is to be effective it has to be built into the program. Problem areas need to be clearly defined and objectives stated in terms of changes desired. Objectives should also be stated in terms of measurable items. Plans of work should include plans for evaluating program results.

Present Situation Regarding Program Accomplishment Research

Assumptions of the Committee regarding the present status of program research were:

1. Generally, too many extension workers report accomplishments only in terms of methods used and numbers of people participating in various extension activities.
2. Many extension workers do not see the need of making greater efforts to evaluate growth and development processes in people.
3. Only a limited number of extension personnel are now using systematic and effective evaluation techniques in their programs.
4. Some extension personnel see the need for better evaluation, but are not aware of or skilled in ways to measure accomplishments.
5. The results of much completed extension research is little known and used by extension workers generally.

Object of Program Accomplishment Research

1. To establish the use of more effective evaluation as a normal procedure in planning and developing extension programs.
2. To teach each extension worker the importance of evaluation for program improvement, public relations, and guidance for extension activities.
3. To teach extension workers the methods of measurement suitable to the program and within the scope and ability of the workers.
4. To emphasize the measurement of growth in people and changes of attitude.
5. To help extension workers involve lay people in accepting evaluation as a part of programming and to involve them at all stages of evaluation as far as possible.
6. To motivate State administrative and supervisory personnel to initiate and follow through on an evaluation program with other extension workers.
7. To use studies to stimulate and improve program planning.

Planning and Executing a Program for Better Evaluation

1. Analyze procedures being used as to techniques, extent of their use, and effectiveness.
2. Involve extension workers in planning for the use of better program evaluation.
3. Provide training programs for extension personnel to include some emphasis on evaluation techniques and their use.
4. Replan ES-21 to include more reporting of growth and development of people. Example: Would it be possible to include something on behavior changes or practices adopted?
5. Assist extension workers to design evaluation techniques in terms of their own programs.
6. Involve extension workers in planning and conducting a study of some of their own programs.

Suggestions for Evaluating a State Plan to Improve Measurement of Program Accomplishment

1. Establish and use criteria to show progress of extension workers in:
 - a. The use of evaluation in programming.
 - b. The use of procedures in evaluating their programs.
 - c. The relating of evaluation results to further programming.

Recognition for extension workers who use evaluation successfully could be a motivating factor.

Recommendations

Since Extension's main job is education, some attempts should be made to answer the question, "Are we as extension workers directing our energies toward the solution of the most important problems?"

In order to arrive at an answer to this question, some analysis needs to be made of how extension workers are spending their time, and what types of programs and activities are consuming the greater portion of energies and effort. The results of such an analysis would be used as a basis for redirecting time and efforts.

Evaluation is being done continuously by every extension worker--most of which is informal, spotty, and unsystematic. There are other cases, however, where more complex research is being carried out. Informal evaluation should be recognized, identified, improved, and should meet criteria for good research techniques.

Observance of the Federal Reports Act of 1942, in its requirement for critical appraisal of questionnaires would improve greatly one of the most common methods of program evaluation.

Special research is needed on adequate identification of needs.

Extensive formal research on program accomplishment should not be attempted in all areas each year. Concentration should be centered on programs of major importance within a county, State, area, or region. This type of research should be undertaken only if trained research Personnel and facilities are available. Problems (or programs) selected for evaluation should be limited to a number that can be effectively accomplished and should be related to specific objectives.

Emphasis should be on getting a few accurate pertinent facts related to program objectives, rather than the accumulation of masses of data that may not be meaningful and usable.

In order to determine some of the areas in which special research needs to be done, it is recommended that a study be conducted in one State per region to determine the major problems in agriculture, home economics, and youth extension programs.

This study to be done in order:

1. To bring into focus our major problems.
2. To provide a sounder extension program through finding solutions of these problems.
3. To establish a mosaic or pattern for the conduct of studies.
4. To acquaint all extension workers with the place and importance of studies.

It is also recommended that a small follow-up committee be appointed to develop criteria for good program research and that this be made available to the States.

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THE USE OF SOUND MOTION PICTURE FILMS IN TEACHING

C. R. Carpenter

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I. Introduction

I owe a debt of long standing to the USDA and its influence through State and county services. Among my earliest and most pleasant memories are those of raising chickens, corn, clover and vegetables under the supervision and friendly encouragement of county agents in Lincoln County, North Carolina. Agricultural bulletins were among my first books and since they were free, they outnumbered all the rest.

In my boyhood community, farming was not merely a job; farming was a way of life which fully occupied each individual, young and old, each family and the whole community. During the first quarter of this century rural communities in the Piedmont region of the south had a simple culture, telephones were new and there were no radios. Motion pictures were rare, used for entertainment only, and considered by most people to be sinful. Automobiles still frightened horses. Television was undreamed of.

The visits of the county agent were exciting occasions and brought to our simple lives cultural and educational influences of the highest values. The county agents whom I knew led me to look over and beyond the red hills and blue ridges. I am here today to thank Mr. Smart and Mr. Morrison and the services they represented.

Mr. Greenhill and I regret that we have missed your stimulating discussions of the past two days. We are advocates of more research in the educational communications field. We are often distressed by the delays in applying research results. We wish we knew how to finance adequately our research program. We are constantly seeking improved designs for our film and television research projects. In short, we could have learned much from you had not our heavy schedules prevented us from being here.

We have one other regret: We wish we knew intimately and thoroughly the total context in which you are working and knew equally well your problems and the people with whom you are working. If we did have this background we could bring to bear our research findings with greater appropriateness and force. We hope you will make the translations and applications.

II. Main Development

A. A general perspective of film research.

The Instructional Film Research Program which we represent has been financed and sponsored for nearly eight years by the Office of Naval Research and other agencies interested in military training. Our

continuing purpose has been to discover and apply facts and principles for improving the effectiveness of sound motion pictures used for education, instruction or training. Also, we have attempted to find ways of speeding up learning with large mass audiences or in extensive training programs. In other words, we have been concerned with increasing the efficiency of instructional methods using the mass media, principally the comm. sound motion picture.

During the life of this program we have scheduled about eighty research projects and completed a high percent of them. Using films, we have attacked problems of teaching and testing motor skills, learning of facts, teaching principles, teaching foreign language and the names of parts of equipment. We have attempted to change attitudes and influence opinions. We have been concerned with improving and speeding up methods of producing effective films and of studying the conditions under which films are used. In addition, we have been interested in the basic, pure science and theoretical basis of communication processes and the relation of these to the objectives of changing human behavior.

In broad perspective, we have done several general things: We have attempted to apply known psychological and educational principles to sound films in the hope of improving them. We have used the film as an instrument of research, as a means of controlling and presenting stimulus materials and as a means of measuring or testing responses. With objectivity, we hope, we have been exploring generally the limitations and potentialities of films as a means of education. Subsequently we have tried to overcome or compensate for the limitations and to take advantage of the potentials. As with all research, much that we have learned is not new but we believe we have made reasonable contributions to the science and art of sound motion picture communication applied to education and training. And, although we have been working principally with films, many of our results can be applied almost directly to television as used for educational purposes.

B. General methods.

The general methods of research on communication processes are similar to those used in plant and animal genetics. Indeed, R. A. Fisher has used plant breeding to exemplify his experimental designs and statistical analyses. Essentially in communications research, as in plant breeding, the first problem is to isolate experimentally the important factor or factors which contribute to the effectiveness of the communication. In plant genetics such factors might be disease or drought resistance, color, form, yield or maturity rate. In film research such factors might be accuracy and clarity of presentation, repetition or reiteration, rate and duration of theme development, organization, levels of interest for different audiences, "idea burden," or even color.

There are two other parallels between film and genetic research.

1. Rarely are genetic factors completely isolated. On the contrary, they are linked together in various degrees of interaction. The same condition prevails in the factors which relate to effectiveness of films. For example, the rate of development of a theme or subject interacts closely with the number of concepts presented or the idea burden of the film, and the level of difficulty for the people who would learn from the film.

2. Genetic factors may inhibit or suppress other genes or gene clusters. Similarly in films we find characteristics of films which inhibit, reduce and interfere with the effectiveness of positive characteristics. For example, irrelevant elements either in the picture or commentary may distract from and reduce learning of the central idea or concept.

In brief, film research methods involve the definition and control of specific factors, characteristics and variables. These may be dealt with singly or in patterns. Experimental films can be produced with other things held relatively constant except the variable under investigation. These films can then be tested on comparable groups or audiences of learners and the results compared to determine the effects of the controlled variables.

This kind of research involves control and measurement of variables specifically related to the film. Other types of experimentation may deal with the source of the content or information; its authority or prestige value; its context of origin or setting. Still another area would be to hold the film constant, i.e., use the same film but vary learning groups or audiences. There are great variations in the reactions of different people and different groups to the same instructional materials and methods, whether these be broadcasts, individual instructions, discussion groups, social action programs, psychodrama or sound motion pictures.

Whatever is the variable or area of research, it is essential to have reliable and valid measures of the reactions of learners. Usually we merely approximate ideal measures. Such approximations are paper-pencil tests, rating scales, and judgments of panels. When teaching new methods of plant disease and insect control or safety on the farm, the central problem is whether or not and to what degree the material taught is applied in action. Specifically, we want to know, does the farmer use, in the correct way, the new spray formula and does he take the recommended safety precautions when operating a tractor. What he knows and says he knows is important, but what he does as a result of his new learning is most important and this is the goal of instruction. Thus, we must conclude that the validation of measures of effectiveness of any particular educational method must be found in the behavioral changes which are produced and applied in the context of living. There may be changes in the adjustments of individuals, in the activities of families or communities and in ways of earning a living.

I have discussed methods of film research because I believe that our attempts to do this kind of complex and difficult research have taught us much about the teaching processes. I observe that you have been concerned with methods of research in previous sessions. Some of the

methods we have used can be applied directly to the investigation of other ways of influencing human adjustments. Furthermore, the use of films as an instrument of research may help solve some of your most complex problems.

C. The use of motion pictures in teaching

Let us now come to grips with the central question. What have eight years of research told us about the use of sound motion pictures in teaching?

For the rest of this discussion I shall become more direct and categorical. I shall not have time to give the evidence for each generalization but I can state them with considerable confidence. Furthermore, the proposals which I shall make are not exclusively the results of our research; much educational thought and the research of others contribute to the background information. What are the principal generalizations that we can make?

1. The full potentialities of the sound motion picture are only beginning to be imagined and exploited. We are only beginning to glimpse the extent to which films can be used to meet the enormous and increasing demands being made on education, especially in adult, agriculture and home economics extension education.

There are vast numbers of definable teaching tasks in rural homes and farms which can be taught completely and exclusively by sound films, provided they are correctly produced, made appropriately available to the right target audiences and correctly used. Film research not only tells us that this can be done but also that enormous economies in teaching could be made if it were done. Teaching manpower, of which there is always a great shortage, could be saved or invested in other crucial tasks and the teacher's efforts could be importantly supplemented.

Research indicates these potentialities; it also delineates obstructions to their accomplishment. These are:

a. Lack of a concept of the completely adequate film for specific teaching tasks and for specified people.

b. Inadequate film production is another barrier. We are not making films with the full instructional power which can be built into them.

c. Methods of using films merely as auxiliary aids preclude capitalizing on their full potentialities.

d. Finally, the resistance of teachers to the use of films as suggested is a large factor in preventing the application of films, or television, for maximum effect in the vast educational enterprise in which we are engaged.

2. The quality of films should be intimately related to their use in teaching. In the first place, producers should design and produce films against a background of thorough knowledge of the teaching

objectives and situations in which the films are to be used. To achieve this, it has been demonstrated that the users of films could well produce them or at least work closely with producers. Given inadequate films, the user often must compensate for these limitations. For example, the short heavily packed film which is low in teaching effectiveness can be used in such a manner as to improve its effectiveness. Supplementary study materials can be prepared and distributed. Pre- and post-showing discussions can be held. The film can be shown two or three times. Tests can be given or informal question periods held on the content of the film. After you have defined the problem you will think of other ways of compensating for inadequacies or capitalizing on potentialities of films.

3. Research tells us much about the general problem of appropriateness of the use of films for teaching. Judgments on appropriateness can be made relative to both general and specific teaching objectives. Selection of appropriate films rather than the indiscriminate use of those which happen to be conveniently available is an indispensable first step. We find in military testing and training situations that to get good results films must be used which are closely related to training programs, to the activated interests of trainees and to the adjustments which are being made by the trainees. The film which is irrelevant, as perceived by trainees, or which is imposed as an extraneous element is certain to be a poor teaching instrument.

4. Research shows that although the best or optimal viewing and use conditions are ideally desirable, that if the material is of direct and strong interest to the audience, is closely related to their realized needs, then variations in quality in films produce little or no difference in the amount of learning. Strong motivation or interest in learning thus overcome many distracting factors. Hence, the lower the interest value of the film for the audiences, the more compelling and forceful must be the power of the film. The human organism is remarkably persistent in satisfying its needs or in avoiding what it does not want.

5. Film research teaches us a great deal about the desirability of adapting instructional materials and methods to people. When the well-known and wide variabilities of people's abilities to perceive or observe, to learn, to remember and to apply what they know are considered, then the lesson is clear: Teaching materials and methods must have in them equally wide possibilities for different people to react to them. In a sense this is what we mean by "enriching curricula." This requirement weighs heavily on the mass media, particularly films and television. As in many human activities there is a strong inclination for those who would educate to fixate on too uniform "formats," methods and procedures; we stereotype our materials and methods. Instructional films especially have been poured into common molds and presented to too diverse audiences. Even discussion group methods in the hands of professionals become routinized, standardized and lacking in variability, originality, flexibility and spontaneity. There is no best and most appropriate film or method. There is no one key for unlocking the doors to knowledge. There are

or should be many varied films; long, short, factual, dramatic, cheap, expensive, etc., depending on objectives and the characteristics of the people who should be influenced by them. There should be many keys depending on the locks which we would open.

6. Finally, film research, although very expensive in itself, shows ways of reducing the cost of producing training materials. A serious problem in this country is the increasing expense of almost everything that we do. We are not only expanding educational services, as we must with population increases, but also costs per unit of instruction are going up. In a country where efficiency is a key concept in business and industry, it is almost a taboo word in education. We must and we can introduce cost controls and through research and development find ways of accomplishing the same educational objectives at less cost per unit of instruction.

The films which I now wish to show to illustrate several points constitute an example. Generally used methods of film production in the military services would have required four times the cost and four times the number of months to produce a series of eight films on the M-1 rifle. Furthermore, the chances are that when produced they would have been less effective as training materials. Even so, the three months of time and \$10,000 which we spent could have been further reduced.

HIGHLIGHTS OF THE INSTRUCTIONAL
FILM RESEARCH PROGRAM

L. P. Greenhill
The Instructional Film Research Program
Pennsylvania State University

History and Objectives

On June 30 next the Instructional Film Research Program will have been in operation for eight years, and you might well ask what have we been trying to do during this time and what has been accomplished?

Back in 1947 the Special Devices Center of the Office of Naval Research decided to set up programs of research on three of the mass media, radio, film and television, with the general objective of finding out how to make maximum use of these media for training purposes. A contract to work on the use of radio for training was awarded to the University of North Carolina. Penn State was invited to work on the instructional film, and television was to be handled jointly by Fordham University and the Special Devices Center itself.

The Instructional Film Research Program was established here in the College of Education and has been in continuous operation for nearly eight years. The principal objective of this program has been to conduct research in "an effort to discover facts and principles which will improve the effectiveness of films when used in instruction or mass training."

The Instructional Film Research Program is staffed by a full-time research staff, with clerical and secretarial assistants, supported by faculty who work part-time, and advanced graduate students. The staff has varied between eighty and twenty, with the typical number being about thirty, of which ten would be graduate students. We have regarded graduate training as a very important part of our work, and during the past seven and one-half years have sponsored about fifteen M. A. theses and over thirty Ph. D. dissertations in the field of communications research.

During this eight-year period we will have completed over eighty individual research projects, and will have produced over one hundred and fifty publications in one form or another. (I.F.R.P. bibliography) Most of our studies appear as SDC technical reports, and nearly fifty of these have been issued and others are in process of publication now. (List of Reports)

These research studies range from the bibliographic survey type through clinical and experimental studies to work on some special problems which I shall discuss later. The great majority of the studies are, however, experimental studies.

In this type of study we attempt to define a problem and the relevant variables in it - e. g., what is the effect on learning from a performance type film by pointing out the common errors of operation and showing how to avoid them, or, to what extent do organizational outlines in the form of titles affect learning from informational films. The

defined variables are then built into special versions of films in such a way that critical comparisons can be made (26 versions of films on breech block assembly). These films are then tested using appropriate populations and tests.

The experimental studies can be classified into four main categories: (1) production variables in teaching performance skills, (2) variables in films designed to teach facts and information, (3) variables in films designed to restructure people's attitudes, (4) variables related to the effective utilization of films.

In the time available I cannot give detailed descriptions of all of these variables, but I shall mention a few in each category, and we can discuss them further during the discussion period if you wish.

Studies on Teaching Skills by Films

Approximately fifteen studies have dealt with the teaching of performance skills by films ("the how to do it" type of film). Some of the variables studies have been:

- (1) Rate of development - fast vs. slow.
- (2) Repetition - amount and varied vs. constant.
- (3) Showing errors in performance and how to avoid them.
- (4) Comparisons of subjective and objective camera angle.
- (5) Use of concurrent practice or audience participation.
- (6) Use of various forms of address in the commentary.
- (7) Varying amounts of commentary - low-medium-high verbalization.
- (8) The explanation of how-it-works as an aid to learning an assembly skill.
- (9) Effects of use of nomenclature or technical terms on learning.

Teaching Facts and Principles

Nearly twenty studies have dealt with characteristics of films designed to teach facts and principles. Some of these variables are:

1. Idea density (a form of rate of development).
2. Introductions in films to orient the viewers, and summaries to pull the main points together.
3. Black and white vs. color.
4. Use of optical effects and relationship of film literacy to learning from films.
5. Use of titles to provide an organizational outline.
6. The effects of inserted question in films.
7. Repetition of films (1-4 showings).
8. Comparisons of types of film treatments (Cold Weather Uniforms, Personal Hygiene, Riot Control).

Film Utilization Studies

A substantial number of studies have dealt with various ways of using films in order to increase learning from them:-

These studies include such problems as the following:

1. Can students learn substantially from films alone? (VanderMeer, Jaspen)
2. Is such learning aided by the use of study guides?
3. What is the value of note-taking during film viewing.
4. The use of film loops for teaching skills.
5. Screen viewing distances and angles and daylight vs. dark viewing of films.
6. The effects of induced anxiety on film learning (threat).
7. The value of mental practice in learning a performance skill.
8. The effect of a pre-film test on learning from a film.
9. The effect of knowledge of test results on learning from films.
10. The effect of film viewing practice on learning from films.

Relation of Films to Attitude Formation

The most difficult area to work in is that of attitude restructuring, and yet this is one of the largest applications of films - in advertising and public relations, and for indoctrination in the services.

What makes the task a difficult one is the problem of measuring attitude change. Generally, we would like to measure actual changes in behavior, but this is difficult and often unreliable. (Buying products vs. personal hygiene). Most verbal measures of attitudes have problems of validity - Do people tell the truth? Do they do what they say they do? However, a promising technique in the area of attitude measurement is the use of Guttman scaling techniques. Using this method it is possible to develop unidimensional measures of specific attitudes, and to rank people from most favorable to least favorable in a very reliable way.

Let me mention some of the attitudinal questions studied under the auspices of the Instructional Film Research Program.

- (1) What should be the role of the narrator in an attitudinal film in order to gain maximum acceptance? Should he be anonymous or a person of prestige, and if the latter how should he be characterized? (Abrahamson, Scollon, Kishler)
- (2) What is the relation of dependability of a film as perceived by the audience (their estimate of its "truthfulness" or "sincerity") and attitude change?
- (3) What kinds of arguments should be used in an attitudinal film - all favorable to the direction of the "message" or should negative arguments be admitted?
- (4) What is the relationship between the perceived usefulness of a film (i.e., attitude toward learning the material) and actual learning? (Use of Guttman scale)
- (5) Can films play a useful role in changing people's attitude towards themselves and others? That is, in improving personal adjustment (Martens, Harriman, Stein)

- (6) Do films with aggressive themes make children more or less aggressive in behavior?

The whole area of films used in mental health will repay close study - both for therapy and diagnosis or personality testing.

Special Applications of Films

Now let us turn briefly to some special problems or new applications of films.

- (1) The use of films in testing proficiency in acquiring skills (Object: to get nearer to a performance test than is possible with paper and pencil test).

- (2) The use of films in job description to provide a record of individual or group behavior on a job, in order to determine safety requirements, training needs, etc.

- (3) Teaching foreign vocabulary by film (Russian language study).

- (4) Make your own teaching films. Development of simplified procedure for local production of sound films based on use of a manual, together with a single system sound camera or magnetic sound projector.

- (5) Panel evaluation of films. The development of valid criteria and rating scales on a special film analysis form for improving the effectiveness of films in production.

- (6) Finally, there have been a series of studies on the use of two and three dimensional teaching aids in various situations. A recent one of the studies, for example, investigated the value of principles training (the "why" as well as the "how") in response generalization (performing related tasks); also the relationships between principles training and the use of two dimensional, three dimensional and the actual equipment in teaching for response generalization.

Value of Film Research

Finally, it might be asked - what is the value of film research? And this is a good question! Some people mistakenly think that we are looking for a formula that will result in the production of the "perfect" teaching films. This is far from the truth. We believe that the principal values of the research results we now have are the following:

- (1) to clearly define problems in instructional film production, rather than to offer ready-made solutions;

- (2) to suggest critical areas in production where decisions must be made rather than to tell what decisions to make;

- (3) to provide detailed information about a range of film characteristics and how they effect learning in a variety of situations, rather than to say precisely what film characteristic or variable to use in a given situation;

(4) to point the way to new applications for films, or to emphasize important variables related to the effective utilization of films.

Thus film research results act as guide points and show where to put emphasis. However, film research results must be interpreted and adapted by the film-maker to meet the requirements of each specific film production situation.

If we succeed in getting across one idea which we consider to be of paramount importance - the idea of evaluating instructional films or film characteristics in terms of "What are their effects on learners?" rather than "Will other experts approve of them?" we will consider our efforts largely successful.

SUMMARY OF REPORTS
of
The Instructional Film Research Program

By Loran C. Twyford, Research Section

Special Devices Center

Office of Naval Research

Included here by Dr. Carpenter and Mr. Greenhill

Summary of Thirty-five Reports

FOR THE CURRICULUM PLANNER

1. Effectiveness. Films are at least as effective as other comparable means of instruction (-13, -25) 1/ Films alone can be used to teach factual information (-13, -19).
2. Motor-Skills. Motor-skills that are at least as complex as operating a sound motion picture projector or performing gymnastic skills can be taught by means of films alone (-26, -29). An instructor can increase his effectiveness by using film loops to teach a skill to groups while he devotes his time to coaching individuals (-25).
3. Mental Hygiene. In addition to being effective for teaching skills and factual information, suitable films can be used to improve personal adjustment (-22).
4. Specific Films. Specific content in films is required to meet specific instructional objectives. Films with broad superficial content aimed at a generalized audience are likely to be less effective than films with well specified content aimed at an audience of known characteristics (--19, -31).
5. Specific Audience. Films should be prepared for a specific audience (-31).
6. Purposeful Use. Use films to teach. Films are likely to be more effective if they are integrated into the curriculum, and if they are related to carefully formulated instructional objectives (-31).
7. Consistent Use. People learn to learn from films (-20). When films are used as fill-in, for entertainment, or if the content does not appear to the trainee to be pertinent to the course being studied, there is likely to be less learning than would otherwise be the case (-24).

1/ Reference to bibliography following report.

FOR THE FILM PLANNER AND PRODUCER

1. Camera Angle. Show a performance on the screen the way the learner would see it if he were doing the job himself (-5).
2. Rate of Development. The rate of development of a film should be slow enough to permit the learners to grasp the material as it is shown (-17).
3. Succinct Treatment. Presenting only the bare essentials or rapid coverage of subject matter may be very ineffective (-11).
4. Show Errors. Learning performance skills from films will be increased if you show common errors and how to avoid them (-17).
5. Repetition. Organize a film so that important sequences or concepts are repeated in a variety of ways (-17). Repetition of films, or parts within a film, is one of the most effective means for increasing learning to a required level (-12).
6. Organizational Outline. Films which treat discrete factual material appear to be improved by the use of an organizational outline in titles and commentary (-33).
7. Introductions. Present relevant information in the introduction and tell the viewer what he is expected to learn from the film (-8).
8. Summary. Summarize the important points in the film in a clear concise manner. Summaries probably do not significantly improve learning unless they are complete enough to serve as a repetition and review (-8).
9. Visual Potentialities. Take advantage of the ability of the motion picture medium to show motion, to speed up and slow down motion, to telescope and otherwise control timing of events and processes, to bridge space, and to organize events and actions (-19, -31). The visuals and commentary in a film should reinforce each other (-18).
10. Picture-Commentary Relationship. The commentary of a typical informational film appears to teach more than only the pictures of that same film when learning is measured by verbal tests (-18). This does not necessarily mean that the commentary has greater inherent effectiveness than pictures; it may mean that producers are currently relying more heavily on commentary than on pictures or on the optimum integration of the two. With films designed to teach performance skills, where learning is measured by non-verbal tests, the pictures appear to carry the main teaching burden (-4).
11. Concentration of Ideas. Ideas or concepts should be presented at a rate appropriate to the ability of the audience to comprehend them (-7).

12. Commentary. The number of words (per minute of film) in the commentary has a definite effect on learning. Care should be taken not to "pack" the sound track (-4, -11, -17).
13. Use of Personal Pronouns. Use direct forms of address (imperative or second person) in film commentaries. Avoid the passive voice (-4).
14. Nomenclature. Introduction of new names or technical terms in a film imposes an additional teaching burden on learners, and may impede the learning of a performance skill (-11, -17).
15. Special Effects. Special effects used as attention-getting devices have no positive influence on learning (-9).
16. Optical Effects. A film in which such optical effects as fades, wipes, and dissolves have been replaced by straight cuts, teaches just as effectively as a film which uses these effects (-34).
17. Stereoscopic Films. In the one experiment conducted, the addition of stereoscopic vision did not increase learning of a motor skill performance (-32).
18. Color. Experimentation has not yet demonstrated any general over-all increased learning as a result of using color in instructional films (-28).
19. Music. Preliminary experimentation suggests that music does not add to the instructional effectiveness of an informational film (-19).
20. Pre-testing. Scripts, workprints, demonstrations and final prints can be evaluated quickly using the learning profile method of film evaluation which requires a group of trainees to estimate their own learning (-23).
21. Film Loops. Short film loops which can be repeated continuously as many times as desired, appear to be a good way of teaching difficult skills (-25, -26, -27).
22. Participation. Learning will increase if the viewer practices a skill while it is presented on the screen, provided the film develops slowly enough, or provided periods of time are allowed which permit the learner to practice without missing new material shown on the screen (-17).

FOR THE INSTRUCTOR

1. Let the Film do the Instruction. Good films can be used as the sole means for teaching some kinds of factual material and performance skills. Where the instructional situation makes it advisable, take advantage of this possibility (-13, -17, -26, -29).
2. Instruct Students to Learn from Films. Tell the viewers firmly that they are expected to learn from the film, and if possible, tell them that they will be tested and do so (-24). This procedure will result in increased learning.

3. Increase the Amount of Learning. Learning can be increased by repetitive showings (-12, -16), pre-testing (-35), post-testing with knowledge of results (-30), and introducing the film and stating the purpose and importance of the showing (-24).
4. Use of Study Guides. Ability to learn from films improves with practice in learning from films (-20). Trainees will learn more if printed study guides are used before and after film viewing (-13).
5. Distractions. Note-taking should not be encouraged during the average film showing because it interferes with attention and hence learning (-21).
6. Use Film Loops in the Practice Area. One showing of a film dealing with a complex skill may be insufficient (-29). Show a film in the practice area so that the student can easily refer to the film model as often as necessary. This can be accomplished by rear projection of film loops on daylight screens in the work area (-25, -26, -27).
7. Use Mental Practice. Men can partially learn to do a skill by watching a film and imagining that they are performing the skill and by going through the skill "mentally", even though they do not have the equipment available (-27). Films can provide a model for guided "mental" practice.
8. Length of Film Sessions. Film viewing sessions of informational material can extend to at least one hour without reduction in training effectiveness (-3).
9. Evaluate Film Showings. Do not assume that learning has occurred as a result of showing a film. Evaluate the effect of a film by giving a test (-30, -31).

FOR THE STUDENT

1. Learn from Films Alone. You can learn from films alone (-13), and the more films you see, the more you learn from other films (-20).
2. Learning is Your Job. Films may contain many pleasant devices that might cause you to forget their serious instructional purposes. Films are being used to train you and you are expected to learn from them (-9, -23, -24).
3. Discover the Instructional Purpose. If it is not clear to you, ask your instructor what the purpose is of the film showing, and how the material relates to your training (-31).
4. Nomenclature. Ask your instructor which names of parts must be learned (-11, -21).
5. Make Certain You are Learning. You will know when you are learning (-23). If you do not think you are learning call this to your instructor's attention (-25).

6. Watch for Outlines. Outlines or titles organize a film presentation and indicate how the various topics are related (-33). It will help you to learn if you will look for and study them carefully.
7. Concentrate on the Sound. The sound track often covers the important material to be learned in an informational film (-18).
8. Mentally Practice. Imagine that you are doing the job, or mentally imitate the operations when you are learning from a skill training film (-27).
9. Ask for a Re-showing. If you didn't learn the first time, ask for a repeated showing (-12).
10. Note-taking. You may miss something if you try to take notes during a film. Don't take notes unless you have plenty of time and will review them (-21).
11. Ask for Test Results. If you are tested on film content, ask to have the correct answers to the questions explained to you after the test so that you can improve your learning (-30).

LIST OF REPORTS

INSTRUCTIONAL FILM RESEARCH PROGRAM THE PENNSYLVANIA STATE UNIVERSITY

Government activities may obtain copies without charge by submitting requests to the Commanding Officer and Director, Special Devices Center, Port Washington, New York, Attn: Code 1543.

Non-government activities may purchase copies from the Department of Commerce Office of Technical Services, Washington 25, D. C.

<u>Title</u>	<u>Specdevcen Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Instructional Film Production, Utilization and Research in Great Britain, Canada, Australia.	269-7-1	105782	\$.75
Music in Motion Pictures: Review of Literature with Implications for Instructional Films.	269-7-2	105783	.50
The Relative Effectiveness of Massed Versus Spaced Film Presentation.	269-7-3	105784	1.00
Commentary Variations: Level of Verbalization, Personal Reference, and Phase Relations in Instructional Films on Perceptual-Motor Tasks.	269-7-4	105785	1.00
Effects of Learner Representation in Film-Mediated Perceptual Motor-Learning.	269-7-5	105786	1.00

<u>Title</u>	<u>Specdevcen Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Learning Theories and Instructional Film Research.	269-7-6	105787	\$.25
Relationship of Length and Fact Frequency to Effectiveness of Instructional Motion Pictures.	269-7--7	105788	.50
Contributions of Film Introductions and Film Summaries to Learning from Instructional Films.	269-7-8	105789	.75
The Effect of Attention-Gaining Devices on Film-Mediated Learning.	269-7-9	105790	.75
The Effects of Prestige and Identification Factors on Attitude Restructuring and Learning from Sound Films.	269-7-10	105791	.50
Effects on Training of Experimental Film Variables, Study II: Verbalization, "How It Works", Nomenclature, Audience Participation, and Succinct Treatment.	269-7-11	105792	.50
Effect of Repetitive Film Showings on Learning.	269-7-12	105793	.25
Relative Effectiveness of Instruction By: Films Exclusively, Films Plus Study Guides, and Standard Lecture Methods.	269-7-13	105794	.50
The Classroom Communicator.	269-7-14	105795	.50
The Film Analyzer.	269-7-15	105796	.50
The Effects of Inserted Questions and Statements on Film Learning.	269-7-16	105797	.50
Effects on Training of Experimental Film Variables, Study I: Verbalization, Rate of Development, Nomenclature, Errors, "How It Works", Repetition.	269-7-17	105798	.50
Comparison of the Audio and Video Elements of Instructional Films.	269-7-18	105799	.50
Instructional Film Research 1918-1950(P-977) (Chapter 9 covers the content of Special Report #1).	269-7-19	111000	2.50
Practical Principles Governing the Production and Utilization of Sound Motion Pictures.	Special Rpt. 1	105687	.50

<u>Title</u>	<u>Specdevcen Technical Report No.</u>	<u>Dept. of Commerce PB No.</u>	<u>Price</u>
Effect of Film-Viewing Practice on Learning from Instructional Films.	269-7-20	111C08	\$.50
The Value of Note-Taking During Film Learning.	269-7-21		.50
Effects of Mental Hygiene Films on Self-Regarding Attitudes.	269-7-22	111C09	.50
Film Profiles.	269-7-23		.50
Relationship of Anxiety to Learning from Films.	269-7-24		.50
Evaluation of a Procedure for Using Daylight Projection of Film Loops in Teaching Skills.	269-7-25		.50
Daylight Projection of Film Loops as the Teaching Medium in Perceptual-Motor Skill Training.	269-7-26		.50
Comparison of Mental Practice and Physical Practice in the Learning of Physical Skills.	269-7-27		.50
Relative Effectiveness of Color and Black and White in Instructional Films.	269-7-28		.50
Instructional Effect of the Film "How to Operate the Army 16mm Sound Projector Set".	269-7-29		.50
The Effects of Knowledge of Test Results on Learning of Meaningful Material.	269-7-30		.50
Logistics of Sound Motion Pictures for Military Training.	269-7-31		.50
Effects of a Stereoscopic Sound Motion Picture on the Learning of a Perceptual-Motor Task.	269-7-32		.50
Effects on Learning of the Prominence of Organizational Outline in Instructional Films.	269-7-33		.50
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SAMPLE FILM EVALUATION FORMS

Included by Dr. Carpenter and Mr. Greenhill

Trainee Film Evaluation Form A
for
Informational and Skill Films
from

The Instructional Film Research Program of the
Pennsylvania State University. Developed in Conjunction
with the Naval Reserve Research Company 4-4

INSTRUCTIONS

This form has been designed to help you to be objective in judging the instructional value of the film you have just seen. Please read each item carefully and be as objective as possible in making your judgment. The six numbers following each criterion represent a scale or continuum. The extremes of each scale have been identified to aid you in making this choice. Circle the number which represents your best judgment of the degree to which the film satisfies each criterion.

PLEASE DO NOT OMIT ANY ITEMS--RATE THE FILM ON EACH CHARACTERISTIC

1. Were the objectives of the film clear to you?

Ambiguous

Clear

1 2 3 4 5 6

2. Did the film attract and hold your interest?

Dull and boring

Very interesting

1 2 3 4 5 6

3. Did the film build on your previous knowledge, skills, or experience?

No relation to and use of
previous knowledge and
training

Film content and
previous experience
very effectively
related

1 2 3 4 5 6

4. Was the subject matter presented in this film appropriate for your present course of training?

Not appropriate

Very appropriate

1 2 3 4 5 6

5. Did the content relate directly to the main objectives of the film?

Unrelated

Clearly related

1 2 3 4 5 6

6. Was the content presented in a well organized, systematic pattern?

Confused and disorganized

Very well organized

1 2 3 4 5 6

7. Were the important ideas or procedures clearly emphasized?

Very vague

Stand out clearly

1 2 3 4 5 6

8. Did the film attempt to present too much material to be learned at one time?

Film tried to cover too many points

Film presented a learnable amount of information

1 2 3 4 5 6

9. Were new facts, ideas, terminology or procedures introduced at a rate which permitted you to learn them?

Poor rate of development:
either too fast or too
slow

Effective rate of development
neither too fast nor too
slow

1 2 3 4 5 6

10. Did the film provide for adequate repetition of the important content? (e.g., repetition with variation, exact repetition, summaries, outlines, etc.)

Repetition was never used
or was used excessively

Repetition was used effectively
where appropriate

1 2 3 4 5 6

11. Was the method of presentation (story form, exposition, animation, live action, etc.) suitable to the subject matter?

Inappropriate

Appropriate

1 2 3 4 5 6

12. Was the difficulty of the pictorial presentation appropriate considering your age, education level, intelligence, etc.?

Very inappropriate, either
too difficult or too easy

Very appropriate: neither
too difficult nor too easy

1 2 3 4 5 6

13. Were the details of the information or demonstration clearly presented pictorially? (This refers to camera angles, lighting, sharpness, exposure, use of closeups, and other technical considerations.)

Presentation was obscure
or confusing

Presentation was
very clear

1 2 3 4 5 6

14. Was the verbal difficulty of the commentary appropriate considering your educational level, and previous experience?

Very inappropriate: either
too difficult or too easy

Very appropriate: neither
too difficult nor too
easy

1 2 3 4 5 6

15. Did the commentator(s) contribute to the effectiveness of this film? (i.e., appearance of commentator(s), tone of voice, manner of speech, or speed of delivery, etc.)

Detracted

Contributed

1 2 3 4 5 6

16. Was the sound track clearly audible?

Sound inaudible

Sound clearly audible

1 2 3 4 5 6

17. Was the information presented in the commentary well integrated with that presented in the pictures?

No integration

Closely integrated

1 2 3 4 5 6

Other Comments:

FILM EVALUATION FORM
FOR
ATTITUDINAL FILMS

Instructional Film Research Program

Film Title _____

Total Score: _____

Purpose of Film _____

Intended Audience _____

How Film Will Be Used _____

Evaluator: _____

Date: _____

In what capacity do you believe you are best qualified to assess this film?
(Place a check beside one of the following alternatives. If qualified in
more than one respect, number your choices to indicate the relative order of
qualification.)

_____ As a subject matter expert.

_____ As an expert in instructional film techniques.

_____ As a teacher or potential user of the film.

_____ As a potential member of the target audience.

INSTRUCTIONS

This form has been designed to help you to be objective and systematic in
estimating the potential value of the film you have just seen. Please read
each item carefully and be as objective as possible in making your rating.
The six numbers following each criterion represent a scale or continuum.
The extremes of each scale have been identified to aid you in making the
choices. Circle the number which represents your best judgment of the de-
gree to which the film satisfies each criterion.

PLEASE DO NOT OMIT ANY ITEMS - RATE THE FILM ON EACH CHARACTERISTIC.

OBJECTIVES IN RELATION TO AUDIENCE

1. Do you think that the objectives of the film will be clear to the viewer?

Objectives will
appear confused

1

2

3

4

5

6

Objectives will be
very clear

2. Does the film seem to be designed for a specific target audience, or does it try to make appeals to a variety of target audiences?

Designed for heterogeneous groups

1

2

3

4

5

6

Designed for a specific homogeneous group

3. Will the film attract and hold the interest of the target audience?

Will find it dull and boring

1

2

3

4

5

Will find it very interesting

6

4. Is it highly probable that the target audience will be able to use or apply the information and ideas presented by the film?

None of the content is likely to be applicable

1

2

3

4

5

All of the content is likely to be applicable

6

TREATMENT AND APPEALS USED

5. Does the film produce maximum 'involvement' of the viewer? (Will he feel that the film applies to him personally?)

Individual will feel remote from film situation

1

2

3

4

5

Individual will feel film applies to him personally

6

6. How do you think the audience will react to the characters in the film?

They will reject them as unreal or stereotyped

1

2

3

4

5

They will accept them as 'real' people making real life decisions

6

7. How do you think the audience will react to the situations in the film?

They will reject them as unreal or phony

1

2

3

4

5

They will accept them as true to life

6

8. Is the desired attitude or behavior change reasonable and attainable considering the characteristics of the target audience (current values, beliefs and behavior)?

Impossible

1

2

3

4

5

Quite possible

6

9. Is it highly probable that the target audience will find themselves in situations which will call forth the desired behavior or attitudes?

Not probable

1

2

3

4

5

Highly probable

6

10. Does the desired change in attitude or behavior differ too much from the current attitude or behavior of the target audience?

Differs too
extremely

1

2

3

4

5

Differs by the
right amount

6

11. Is the attitude or behavior desired from the audience made clear to them?

Ambiguous
presentation

1

2

3

4

5

Clear
presentation

6

12. Does this film show undesirable attitudes and behavior and explain why such attitudes or behavior are undesirable?

Poorly or
not at all

1

2

3

4

5

Does this very well

6

13. Does this film clearly show the rewards or satisfactions to be gained by adopting the desired attitude or behavior?

Does not
show reward

1

2

3

4

5

Shows reward
quite clearly

6

14. Are the "rewards" shown adequate and appropriate for the target audience and their life situations?

Very inappropriate

1

2

3

4

5

Very appropriate

6

15. Are the appeals to change behavior or attitudes appropriate and strong enough to accomplish the desired objective?

Very inappropriate
and ineffective

1

2

3

4

5

Very appropriate
and effective

6

16. Are the appeals or messages in the film consistent and reinforcing or inconsistent and conflicting?

Conflicting

1

2

3

4

5

Reinforcing

6

17. Does the film ring true, or does it appear to be phony, stereotyped or artificial?

Appears phony
or artificial

1

2

3

4

5

Film rings true

6

FILM CHARACTERISTICS

18. Is the verbal difficulty of the commentary appropriate to the educational level of the target audience?

Words very inappropriate:
either too difficult or
too easy

1

2

3

4

5

Words very appropriate:
neither too difficult
nor too easy

6

19. Are new ideas, concepts, or characters introduced at a rate which will permit or facilitate comprehension by the audience?

Poor rate of
development:
either too fast
or too slow

1

2

3

4

5

Effective rate of
development:
neither too fast
nor too slow

6

20. Does the film try to cover too many points?

Film covers too
many or too few
points

1

2

3

4

5

Film presents an
appropriate number
of ideas

6

21. Does the film provide for adequate repetition of the important ideas?

Repetition is never
used or is used
excessively

1

2

3

4

5

Repetition is used
effectively where
appropriate

6

22. Are new words or concepts given adequate explanation and repetition?

Very inadequate

1

2

3

4

5

Very adequate

6

23. How well is the information presented in the commentary related to that presented in the picture?

There is little or
no integration between
picture and commentary

1

2

3

4

5

Commentary and
picture are closely
integrated

6

24. Are sound effects perceived as artificial or realistic? (If no sound effects rate as 4.)

Very artificial

1

2

3

4

5

Very realistic

6

25. Does the kind of film employed (color or black and white) effectively portray the subject matter?

a. If the film is in black and white, rate on this scale:

Black and white is
ineffective; color
would be much more
appropriate

1

2

3

4

5

Black and white is
appropriate; color
is unnecessary

6

b. If this film is in color, rate on this scale:

Color is unnecessary;
black and white would
be equally effective

1

2

3

4

5

Color is used to
good advantage; black
and white would be
inadequate

6

26. How do you think the music will influence acceptance of the desired attitudes? (If there is no music, rate as 4.)

Unfavorable

1

2

3

4

5

Very favorably

6

27. Is the type of film treatment (dramatic story form, exposition, animation, documentary, etc.) appropriate to the subject matter and theme?

Treatment is very
inappropriate

1

2

3

4

5

Treatment is very
appropriate

6

28. Does the film effectively employ the potential characteristics of the motion picture? (e.g., Does it take full advantage of its potential to portray action or is it mostly "talk"?)

Action is used
ineffectively or
not at all

Action is used
very effectively

1 2 3 4 5 6

29. Does the film use direct forms of address? (Does it speak directly to the audience, or use person to person dialogue; does it avoid use of passive voice?)

Film uses
passive voice

Film uses direct
forms of address

1 2 3 4 5 6

30. Is there an acceptable protagonist (individual or group) in this film?

None or
unacceptable

Very acceptable

1 2 3 4 5 6

CONTENT

31. Does the content relate directly to the main objectives of the film?

Poorly related
to objectives

Clearly related
to objectives

1 2 3 4 5 6

32. Is there a strong likelihood that the content of the film will be consistent and compatible with the previous experience or knowledge of the target audience?

Very inconsistent

Highly consistent

1 2 3 4 5 6

33. Is it highly probable that the information or procedures presented in the film will be confirmed by the subsequent experience of members or audience?

No confirmation
is possible

Definite confir-
mation is likely

1 2 3 4 5 6

34. Is the information presented technically accurate as to dress, customs, background, action, etc.?

Contains many errors

1

2

3

4

5

Very accurate
6

35. Is the information presented conceptually accurate? (Are the ideas or concepts presented accurately?)

Very inaccurate

1

2

3

4

5

Very accurate
6

36. What is the relative importance of the inaccuracies in the film? (If there are no inaccuracies noted, they are logically of little or no importance.)

Of crucial importance

1

2

3

4

5

Of little or no importance
6

37. Would the target audience get an impression of accuracy?

The film gives an impression of falseness

1

2

3

4

5

The film gives an impression of absolute correctness
6

38. Are the important ideas or concepts clearly emphasized?

Main points are very vague

1

2

3

4

5

Main points are very clear
6

39. Is the content presented in an organized, systematic pattern?

Confused and disorganized

1

2

3

4

5

Very well organized
6

40. Is the content of the film up-to-date?

Entirely out-of-date

1

2

3

4

5

Entirely up-to-date
6

41. Could the subject matter be treated more effectively through some other medium? (e.g., lecture, demonstration, slide film, textboo, recording)

A motion picture is much less effective than other means of ppresenting the sub-ject matter

1 2 3 4 5

A motion picture is much more effective than other means of presenting the sub-ject matter

6

42. Could the subject matter be taught as effectively but more feasibly or economically by some other means?

A motion picture is the least feasible means of presenting the subject matter

1 2 3 4 5

A motion picture is the most feasible form of presenting the subject matter

6

GENERAL

43. Did the film attract and hold your interest?

Found it dull and boring

1 2 3 4 5

Found it very interesting

6

44. Did you like this film?

Not at all

1 2 3 4 5

Very much

6

45. What effect do you think this film will have in bringing about the desired change in attitudes or behavior?

Very unfavorable change

1 2 3 4 5

No Change

Very favorable change

6

Total scores and enter on page 1.

Additional comments:

STUDIES ON EXTENSION TEACHING OF
DISADVANTAGED RURAL FAMILIES

(Some Observations on the Problem)

Harold F. Kaufman
Head, Division of Sociology & Rural Life
Mississippi State College

Both the problem and approaches to a study of "disadvantaged rural families" are extremely complex. This complexity is indicated by a recent study of low-income families and ways of assisting them released by the Secretary of Agriculture and published under the title "Development of Agriculture's Human Resources." Disadvantaged families are a varied group. Raising their level of life ranges all the way from planting a garden to constructing a factory.

The first step in clarifying the problem for discussion comes in the definition of terms. Who are the disadvantaged families? Suggested steps in answering this question are indicated in section II of the discussion outline attached. The most common index for defining disadvantaged has been some measure of income. As indicated below, however, a whole complex of factors are involved. Some of these, such as "level of aspiration," are well recognized but have not been very definitively treated.

A question closely related to "who are the disadvantaged families" is how have they been reached during the last 40 to 50 years of organized agricultural and homemaking education in this country and abroad. The traditional methods of extension teaching have not been too effective with this group. Other avenues need to be explored, as suggested below.

Certainly a question central in any research and experimentation on teaching of low-income families is that concerning the objectives of such a teaching program. Two major ways of answering this question may be noted. One is documentation of the consensus of agricultural educators who have worked in this field for the last several decades. Once those experiences have been documented and analyzed, they would, no doubt, suggest research of a much more definitive nature dealing with goals or objectives. These objectives need certainly to be related to the needs of the people concerned. Policy makers should be explicitly aware of the needs of this group as well as the general public interest.

In terms of the American democratic tradition, the major objective of reaching low-income families is that of assisting them and providing them with opportunities to rise in social and economic rank - to gain the good things of life which others have. In some cases these families will climb the agricultural ladder. In other cases it will be necessary for them to "climb out" of agriculture.

Once the three questions indicated above, namely, (1) who are the low-income families, (2) how are they being reached at present, and (3) what are the teaching objectives - have been answered, one is ready to suggest

research approaches and to formulate research designs. One exploratory study is described briefly in the outline attached. It is entitled "Role of the Community Club in the Adoption of Agricultural and Homemaking Practices (Alcorn County, Mississippi)." This study is only now in the first year of operation and has been planned for a four-year period. A description of the design of the study and its orientation in terms of policy and research questions is described in a paper entitled "A Case Study in Farmer Education." 1/

Several types of studies which are needed in assisting low-income families to improve their lot are indicated in section V, B. of the outline. In looking at this problem as a field of research, it might be suggested that a fruitful first step would be an attempt to bring together pertinent findings and experiences based on a half century of work in agricultural education with disadvantaged rural peoples. Significant programs to be reviewed would be not only the work of the Agricultural Extension Service, but also that of the Farmers Home Administration and other agencies, and the agricultural programs now being launched in the many undeveloped areas of the world.

Research in any given locality might first involve a survey of the situation in order to identify the so-called disadvantaged families in terms of relevant characteristics.^{2/} In addition to these "situational surveys" case studies would need to follow which focused on formulating hypotheses with respect to the functional relationship of the factors concerned. Once the many areas of research have been defined, and a hypothesis formulated, then research studies with tight design pointed toward verification of hypotheses would be in order.

An observation should be made with respect to two major types of factors which might be responsible for there being a large group of families which are identified as "disadvantaged." These families are located largely in the Southeast. Certainly the agricultural and industrial resources which contribute greatly to income level are not as abundant there as they are in other sections of the country where the average income level is higher. In addition to lack of resources, another group of factors which might explain why certain people are on the bottom may be labeled as social and psychological. One element of this group of factors which has frequently been discussed is that of level of aspiration. Just how level of aspiration and lack of resources are related is a research question. For example, is the "average level of aspiration" lower in the rural southeast than it is in certain other sections of the country where the income level of rural families is three times as great? With very limited evidence it is certainly dangerous to be dogmatic with respect to an answer.

1/ A copy of this paper may be secured from the writer.

2/ The work of Committee D which appears in this report describes this type of survey.

Action on the problem of raising the income level of a large proportion of the rural population fortunately does not need to wait until we have all the research answers. The several rural development programs now in widespread operation, including the community development movement which is now dominant in the South, are encouraging. These programs, which operate at the local level through community clubs, are generally reaching a larger proportion of rural people in a given area than any other type of organization except the church. Although this be true, many low-income people are not yet participating. This points up the urgent need of rural development programs emphasizing appeals to the hard-to-reach segments of the population. At this point research tied in with experimental programs is much needed.

Suggested Study Outline

I. Focus and pertinency of the discussion.

- A. Both the problem and approaches to it are extremely complex. Disadvantaged families are a motley group and raising their level of life ranges all the way from planting a garden to constructing a factory.
- B. Definitions.
 - 1. Disadvantaged rural families.
 - 2. Hard-to-reach rural segments.
 - 3. Although these two groupings overlap there are hard-to-reach rural groups who are not disadvantages, e.g., skilled factory employee conducting a commercial farming operation. These fairly well-to-do families form a relatively large portion of the rural population in some areas.
- C. Concern for rural poverty is not new. A number of studies have been made. Extensive programs in the thirties, especially work of FHA and predecessors. Now attention has focused on the undeveloped nations of the world.
- D. Recent program enunciated by the Secretary of Agriculture on "Development of Agriculture's Human Resources."
- E. Three major questions need be asked as studies are designed (II, III, IV below).

II. Who are the disadvantaged families?

- A. Type of definition of disadvantaged.
 - 1. Primarily economic as discussed below.
 - 2. For comprehensive definition would no doubt want to include other factors such as education, morals, level of aspiration, etc.
 - 3. In general disadvantaged families would lack some of the good things of life which others have.
 - 4. A part of the American democratic dream, however, is the freedom to rise in social and economic rank if one will just put forth the effort.
 - 5. The overall task then is one of helping disadvantaged families to climb the socioeconomic ladder - some the agricultural ladder, others "will climb out" of agriculture.
- B. A brief description of disadvantaged rural families - data taken chiefly from "Development of Agriculture's Human Resources."
 - 1. Problem areas defined in terms of income and level of living indices, include nearly 1,000 counties largely in the Southeast, and around 45 percent of farms in nation.
 - 2. In problem areas 80 percent of farms have under \$2,500 of products sold and about half of these low-income farms are operated by persons under 65 who are engaged primarily in agriculture.
 - 3. When problem areas are compared with rest of nation it is found, as might be expected, that operators in low-income areas have less schooling, are older, and a much larger

proportion are non-white. Farms are smaller, much less cropland, value of land and buildings much lower and much smaller proportion of farms have tractors.

C. Some types of assistance which have been suggested for low-income families.

1. Encouragement of migration; migration from low income no greater than prosperous areas.
2. Vocational guidance and training.
3. Farm and home planning and management.
4. Credit and marketing.
5. Improved health and welfare assistance.
6. Providing non-agricultural employment. Agricultural areas which have moved ahead in the South are those near industrial centers.

D. Part-time farmers.

1. For several reasons these persons might be classified into the hard-to-reach group. Slightly over half (639,000) of part-time farm families had gross family incomes under \$2,000. The others might be assumed to have moderate or better income.
2. Study of part-time farmers in Ohio reported in April Extension Review.

III. What should be the objectives in extension teaching?

- A. Traditionally have focused on production and management needs of the commercial farmer. It is doubtful whether either this subject matter or the teaching methods are effective with the low-income group. A new approach is called for, but first objectives should be examined. In many low-income counties even moderately prosperous commercial farmers are only a small proportion of the total.
- B. Teaching objectives should depend on the needs of the people. The following list is merely suggestive and does not attempt to rate objectives in order of importance.
1. Family life education; household management.
 2. Vocational adjustment for adults as well as youth.
 3. Efficient management and production on small farms.
 4. Old age adjustment - not all old people retire in town. Nearly 1/6 of low-income farm operators are 65 or over.
 5. Community organization.
 6. Maintenance of the rural residence as a place of pleasant and wholesome living. Variety of subject matter is needed, such as that on (a) home planning, construction, and maintenance, (b) vegetable crops, (c) floriculture and landscaping, (d) poultry production, etc.

IV. How can the families be reached - teaching methods and organization

- A. Existing organizations and demonstration procedures.
1. We are all acquainted with this. A number of studies of who is being reached and how have been made.
 2. The pertinent finding here is who is not being reached. One grouping which is many times not represented is our "disadvantaged rural families."

- a. Many surveys that have been made all show the same, namely persons of the lowest educational and income levels do not belong to organizations other than the church.
 - b. Even in the church they are less likely to be members and also less active members than are others.
 - c. Participation differences shown by some studies.
 - (1) By education and income.
 - (2) By race.
 - B. Mass media. Low-income families have more contact this way than through formal organizations.
 - C. Community clubs.
 1. The community club movement.
 2. Community clubs because of their inclusive nature frequently reach families no other organized contact will reach.
 - a. Persons are sometimes more apt to participate in the community projects than in the technical agricultural and homemaking ones.
 - b. Where leadership is lacking or where social distinctions are great, even the community club fails to enroll many of the disadvantaged group.
 - D. Other organized channels.
 1. Neighborhood groups.
 2. Youth organizations; especially those related to the school.
 - E. Individual teaching and casework - conditions under which it is needed.
- V. Suggested approaches in exploratory studies.
- A. Role of the community club in the adoption of agricultural and homemaking practices (Alcorn County, Mississippi).
 1. General focus. This involves two complex areas of study - the dynamics of community clubs and the transmission of practices. How to set up a study design that would mesh these two phases and at the same time be manageable has been a problem.
 2. Selection of communities and families.
 - a. Delineation and survey of 37 open country neighborhoods in the county.
 - b. Construction of typology of these.
 - (1) Size.
 - (2) Organizational complexity.
 - (3) Agricultural resources.
 - (4) Presence of community club.
 3. Community club.
 - a. Two types of information on community clubs. Not only is it necessary to get information on neighborhood factors which influence community, but it is important also to analyze the dynamics - the internal operation and structure of each club. This means a social-psychological case study in which leadership, participation, meetings, committees, and similar items are investigated.

- b. Only one of several media. Thus it should be seen in relation to other channels of communication. Other channels or sources include the several agricultural agencies; seed, feed, and implement dealers; the press and radio; and informal neighborhood contacts.
- 4. Adoption and diffusion of practices.
 - a. Schedules taken on operators and homemakers in first year study. This to be repeated in fourth year to get a measure of change.
 - b. Correlates of adoption.
 - c. Case studies.

5. Educational program.

- a. Two related objectives: (1) promotion and strengthening of community club organization in general, and (2) testing specific procedures for the adoption of practices.
- b. Activities which have been carried on toward strengthening community club organization include leadership training courses for officers of local groups, county and neighborhood planning meetings to set up goals, and efforts to tie the services of the various agricultural workers into the community development program. Additional activities of this type which are planned are training meetings for club secretaries and committee chairmen, monthly county-wide program planning meetings, small discussion groups, recreational training, publicizing community development efforts through radio and newspaper and booths at fairs.
- c. Testing specific procedures in the adoption of practices. Such procedures involve the utilization of test demonstration farms and demonstration plots, preparation of subject matter leaflets and subject matter exhibits especially for community clubs, and the organization of discussion groups to decide on practices and goals. Another procedure which is being considered to be applied on an experimental basis is the introduction of different educational techniques directed toward the adoption of one specific practice in each of the several study neighborhoods. An analysis of the comparative effectiveness of each technique would be extremely useful in planning future educational programs.

B. Other types of studies.

- 1. Descriptive studies of the community or area concerned. This would include survey and classification of the population in terms of occupation, income, socioeconomic level, organized contacts especially extension ones, contacts with mass media, and other relevant information for evaluating a population as a potential audience for extension information.
- 2. Studies on level of aspiration. There has been little of this work done. Some information of this type was secured on rural youth studies made in the thirties. A major concern here would be to get a "mobility potential" of given individuals and groups.

3. Experiments on teaching content and procedure, including suggestions given above and others.
 4. Studies on the family planning processes. This would be concerned with the role of each of the family members in planning, supplying information, and carrying out plans. There has been practically no work done of this nature, although in recent years there have been two major programs in agriculture which depended upon knowledge of this process - the present farm and home planning program and the FHA and its predecessors.
 5. Experimental studies in part-time farming. Study very similar to the Alcorn County study but concerned with part-time farmers is now in process in western North Carolina.
 6. Studies aimed at delineating the elements of and measuring farm and home management abilities. Some way of evaluating these abilities is extremely important where the success of a program depends upon selecting people who either have or can develop such skills.
 7. Studies in public policy and public policy implications of various programs to assist the disadvantaged in agriculture.
- C. Some observations on method.
1. It is extremely important to correlate research and extension operations in exploratory and experimental type studies. This means feedback of research immediately for extension teaching and also documentation of extension operations, which is many times lacking.
 2. There is great need to break down studies on ways of reaching disadvantaged families into manageable phases or segments. As this discussion has indicated, this is an extremely complex problem. Consequently, if the problem is to be studied in toto, it demands a rather complex design which demands extensive funds and time for completion.
 3. Sequence of studies as to type of design.
 - a. Survey of the situation. This involves chiefly counting and getting distributions on the relevant characteristics. If a sample is taken, it, of course, involves making estimates from the sample.
 - b. Case studies to establish functional relationships. These studies are needed in order to formulate causal hypotheses.
 - c. Verification studies. These would involve larger populations and have much tighter designs.
 4. Difficulties of setting up controls. The Alcorn County study is a case in point. The research team first conceived of this study as a controlled experiment in which locality groups would be matched except for the presence or absence of effective community organization. As might be expected, it was soon discovered that a carefully controlled situation was impossible. Even if locality groups could be matched on all significant variables except the degree of organization, what assurance was there that the unorganized ones would not become organized during the

period of research? From the standpoint of the educator it was indefensible to prevent certain areas from being organized if community clubs would be effective in reaching stated objectives. Thus, because of the above and also because the causal pattern was so vague, the study team has agreed on a predominately case study design.

REPORT OF WORK GROUP C

Research designed to measure the effectiveness of individual teaching methods and combinations of methods.

The overall purpose of Extension research is to improve the educational effectiveness of the Extension Service. Extension teaching methods are the tools used by Extension workers to bring about desirable behavioral changes in the people with whom they work.

These methods can be classified as -

1. Those used in making mass contacts, such as radio, television, publications and exhibits.
2. Those used in making group contacts, such as meetings and tours.
3. Those used in making individual contacts, such as farm and home visits, telephone calls, personal letters.

These methods are commonly used in a variety of combinations. All of these methods and combinations are inherently effective when used properly and in the right place.

Annual reports tell us the extent to which these methods are used, in terms of millions of contacts; more needs to be known about (1) how well Extension workers use these methods, (2) how these methods produce behavioral changes, (3) the kind of changes they produce, and (4) the extent to which individual methods and combinations of methods produce changes.

Research on the relative effectiveness of methods will help the Extension worker to select the method or combination of methods most effective for his purpose, and how to use the selected method or methods most advantageously.

The generally accepted procedure or series of steps used in designing a study can serve as a guide for some studies of extension methods. Limitations of time prevented the group from developing other guides or designs that might prove helpful in research on effectiveness of methods.

Once a problem area has been selected for study, the following steps will help Extension workers to plan and carry out a study. A time schedule or calendar of work should be made to guide the operations. These steps are an outline or guide which might be used with variations depending upon the situation. The steps are not necessarily followed in order because in the planning of a study one goes from one step to another and back to previous steps. This process goes back and forth.

1. Analyze the situation and state the problem.
2. Consider the availability of such resources as time, money, experience and technical assistance.

3. Clarify the objectives. What are the major questions to be answered by the study?
4. Consider the evidence that is needed. What objectives of extension teaching should be used as criteria of effectiveness? .
5. Should experimental and control groups be used?
 - a. On what factors should the two groups be controlled?
 - (1) Kinds of families.
 - (2) Extension teaching contacts with the families.
 - (3) Subject matter.
 - (4) County extension agents.
 - (5) Other
 - b. Essentially what is the experimental difference between the experimental and control groups?
6. Other designs for an investigation, such as case studies and surveys might be used.
7. Define the population and determine how to select the sample.
8. Select instruments suitable for the research, or prepare and pretest such instruments.
9. Plan to collect the data.
 - a. Should the data be collected at both the beginning and end of the experiment or only at the end?
 - b. How will the data be collected--by personal interviews, mail questionnaires, group meetings, tests?
 - (1) If by personal interviews, how will the survey party be organized, the interviewers trained, the records edited each day?
 - (2) If by mail questionnaire, what shall be the extent of the planned follow-up, such as post card or telephone reminder, duplicate questionnaire?
 - c. Who should collect the data?
10. Collect the data.
11. Tabulate, summarize and interpret the data.
 - a. What analyses need to be made to answer the major questions of the study?

12. Report the findings and suggest their use, to improve the educational effectiveness of the Extension Service.

J. W. Barber, Chairman
Dorothy Delany, Secretary
Fred P. Frutchev (ER&T)
Robert L. Bruce
Lucinda Crile (ER&T)
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Timothy G. Hornung
Kenneth F. Warner

Pilot-Project Studies to Devise Practical Methods of Effectively
Working With Low-Income and Other Special Problem Groups.

I. COMMITTEE OBJECTIVE

To prepare suggestions for making experimental studies in the effectiveness of Extension work in counties with rural development problems. More specifically, the committee's intention is to explain one illustrative plan of study. The object of the suggested study is to measure the effects of various extension approaches and methods used in working with special groups, and particularly rural families with small incomes. The purpose of this measurement is to determine those approaches and methods which are most helpful to families in formulating and achieving their goals in living and farming.

The experimental features of the proposed study lie in the selection of comparable areas in which benchmark descriptions are followed by studies of changes during periods of one to ten years, and in the variation of extension approaches and methods among the different areas. To illustrate the latter possibility emphasis might be on extension teaching through mass media in one area, group meetings in another area, and farm and home visits in still another. Different results with low-income, part-time farmer, beginning farmer, tenant farmer, retiring farmer, etc. families could be observed.

From such a study, involving periodic progress, surveys, and variation of approaches and methods, evidence of differential effectiveness in different situations, would be available to guide extension administrators and other extension personnel in selecting the best ways of working with families of low-income status, or families with other special qualities and characteristics.

If Congress passes legislation to implement the President's message regarding the need for work in these areas and involving other government agencies and private industry, the Committee's research plan should be altered to meet the specifications of Congressional legislation.

II. ORGANIZATION AND PERSONNEL FOR THE STUDIES SUGGESTED

- A. Exploratory and preplanning phases should be undertaken in the State by the Extension Studies Committee or a comparable group of interested extension and research persons, including county extension personnel. This group should further develop the statement of the problem and should further clarify the objectives of the study.
- B. The leader of extension studies (or some person designated by the Extension Administration) should guide the study or give general direction to it through a person assigned to this task.

It is urged that experienced research personnel in home economics, agricultural economics, rural sociology, and statistics be sought as consultants on technical matters concerning the research design or plan, field operations, analysis and interpretation.

- C. The work of gathering benchmark data should be shared by extension personnel, including supervisors and county workers, and by research personnel especially assigned.
- D. A close working relationship should be developed and maintained with the Division of Extension Research and Training of the Federal Extension Service during the planning and conduct of these studies so that they can be coordinated, comparable data obtained, and a general mosaic research pattern be developed in this field.

III. SOURCES OF INFORMATION

- 1. Relevant literature dealing with previous studies of this type. Such materials should be thoroughly reviewed, and suggestions and hypotheses from them should be taken into account in planning the detailed procedures for the proposed study.
- 2. Reconnaissance interviews with professional and other leaders among local residents, to reveal chief social and economic features of the areas. (For illustration see outlines for community description developed by TVA, Kentucky Bureau of Community Service.)
- 3. Census publications and other secondary sources (including extension reports and plans of work). It is urged that county extension workers adopt special record-keeping practices, in cooperation with the survey staff, to provide the necessary information on extension approaches and methods used.
- 4. Interviews with key informants to provide preliminary listing of all households and farms with data on household size and composition, farm size and type, employment patterns and sources of income. (The reconnaissance data, background data and key informant data, will be useful immediately for program planning and later as benchmarks for evaluation)
- 5. Survey of sample of households and farms.
(To provide benchmarks from which changes will later be measured.)

IV. SELECTION OF COUNTIES AND SAMPLE POPULATIONS WITHIN COUNTIES

- A. Counties where the work is to be done should be selected for representativeness in terms of the following, and similar, criteria:
 - 1. Variety of economic sub-regions.
 - 2. Population structure, natural increase and migration.
 - 3. The distribution of families by amount and source of income.
 - 4. Varieties of community and institutional situations.
- B. Selection of families within the county may be made by one of several possible sampling procedures. It is essential, however, that the sample be representative of the population to be studied.

V. TIME SCHEDULE

- A. Background information should be assembled and benchmarks established the first year.

- B. There should be continual observation of the program and study of results, including periodic resurvey in terms of extension objectives. (After 2 years, 3 years, etc. for 5 to 10 years.)

(Analysis of resurvey data may provide two basic types of comparisons: (1) that of the benchmark representative sample with later representative samples, and (2) that of specific families at the benchmark time and at later times.)

VI. COVERAGE OF BACKGROUND DATA

- A. Relevant background material necessary to the study will include such items as the following, as well as other items considered locally to be important:
1. Sizes of groups to be reached.
 2. General description of groups to be reached by age and ethnic characteristics, etc.
 3. Description of economic situations and types of farming.
 4. Migration.
 5. Off-farm employment opportunities accessible locally and elsewhere.
 6. Description of educational opportunities.
 7. Transportation facilities.
 8. Estimate of potential employment in agriculture.
 9. Rate of population growth.
 10. Utilities available.
 11. General values and objectives of the people of the area.
 12. History of extension work in county, and information about the pertinent public agencies that have operated in the area under study. (This would include such agencies as the Extension Service Farmers Home Administration, Soil Conservation Service, and other public and private program agencies. For the Extension Service there would be included such information by types of agent, as number, years of service, lines of work and how each was organized and conducted, organization and use of overall county extension advisory committees, home demonstration councils, 4-H councils, project committees, local leaders. Also included should be the extension program objectives as outlined in plans of work and results as shown in annual reports.)

- VII. SURVEY OF SAMPLE HOUSEHOLDS: This should produce data with schedules prepared for the purpose, on several topics such as those listed below. These headings should be broken down into appropriate subcategories by the survey planning group.

1. Household size and composition by age, sex, educational level.
2. Farm characteristics in terms of scale and type as revealed by usual farm management inventory procedures. For example, the farm and home inventory sheets currently being used in the states may be useful here.
3. Income and savings in terms of amount and sources (.gross farm income from crop and livestock sales, timber sales and other farm income and non-farm income).
4. Employment: Present and former by part or full-time status, farm or off-farm type, local or distant location, industrial classification and occupation, and employability in terms of age, experience and training.
5. Level of living as revealed by some measure such as the Sewell scale of socioeconomic status.
6. Farm practices: as checked against lists of practices known or believed to be sound or important in the area, such as relate to soil improvement and management, domestic and nondomestic crops, animal production, farm management, woods management and marketing. Sources of information about practices recently adopted should be determined.
7. Home practices: as evidenced in food produced at home, food consumed, housing, household equipment, clothing, home furnishings, home management and features of family life including family policy-decision and management-decision. Sources of information should be determined here also.
8. Group and Community status and participation by prestige, by formal and informal character of participation, membership, attendance, support, leadership roles. It will be necessary to record what contact, if any, each family has had with the Extension Service prior to and during the period covered by the study. This would include any participation in Extension work as a member of an advisory, project, or commodity committee, as a demonstrator or member of a home demonstration or 4-H Club, attendance at county extension meetings or events, visiting the county extension office or being visited by extension workers. It would be necessary to know in some detail both the types and frequency of contact with extension.
9. Attitudes, Values and Goals, as expressed in general statements and later classified, or as shown by scales of attitudes toward farming, rural life, susceptibility to change, etc.

VIII. INTERACTION OF EDUCATIONAL PROGRAM ACTIVITIES AND SURVEY ACTIVITIES

- A. Survey activities should interrupt program activities as little as possible.
- B. Program personnel should be members of the survey staff and should participate enough to fully understand the objectives and general procedures.
- C. Advisory bodies, local leadership and the public should know of the survey, its purposes and procedures, through appropriate local news, reports and other means.
- D. Program personnel should keep necessary records and make necessary reports.
- E. Survey directors should continually advise program personnel of any hunches, hypotheses, and findings accruing to the study that would be of any help to them in the course of their work.
- F. Survey and program personnel should meet jointly at intervals for discussion of matters of mutual interest.

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EXTENSION RESEARCH REFERENCE SERVICE

Lucinda Crile, Extension Analyst,

Extension Research and Training, F. E. S.

The Division of Extension Research and Training provides a reference service in extension research.

Review of Extension Research.

We publish the Review of Extension Research annually. It contains digests of findings in studies completed during the year and descriptions of studies currently in progress and studies outlined.

The primary purpose of the Review is to make the findings from studies readily available in brief, simple form and to make it possible for extension workers in the various States to coordinate their research programs.

We have published Reviews of Extension Research each year beginning with 1946. Copies of all issues are available.

The 1954 issue of the Review has been somewhat delayed, but we did have page proof on it last week, so it should be available for distribution very soon.

Bibliography on Extension Research.

In 1943 we published a cumulated bibliography on extension research. It contains references to all of the research studies assembled up to that time. At the end of the next 5 years we published a supplement to the cumulated bibliography covering that period. We now have in process of duplication another 5-year supplement.

A brief annotation accompanies each reference in the bibliographies telling the phases of the subject covered in the study, and something of the methodology used in making the study.

Each of the three bibliographies contains a detailed index to the specific findings in the studies listed. This is presented alphabetically by subjects in the bibliographies.

In all of these Reviews and Bibliographies the studies listed are classified and grouped according to the principal subject covered. This classification is shown in the table of contents. Each publication also contains an author index.

Reference File of Extension Research.

The Division has a reference file of all extension research studies assembled since the work on studies began. We now have copies of about 700 different studies.

We have cumulated author and subject-classification indexes to these studies.

The detailed index to the specific findings published in the three bibliographies is all on cards and they are filed together in a cumulated findings index. This index serves as a very good key to all of the findings in the research studies assembled.

You are invited to come in any time to use this reference file of extension research.

REPORTS AS A SOURCE OF INFORMATION
FOR EXTENSION RESEARCH

C. Herman Welch, Jr.
Extension Analyst, Extension Research and Training Division

In our search for information that will help us in our extension research we should not overlook that which is readily available in the records and reports of extension workers.

Monday afternoon Dr. Knutson referred to the use of housekeeping records. Tuesday morning Mr. Nielson mentioned the use of monthly and annual reports of county agricultural agents in evaluating the experimental township program in Michigan. Yesterday we heard Mr. Burrows refer to extension records that showed percentages of persons who had adopted recommended practices.

This morning I want to give added emphasis to what they have said by citing several examples that have come to my attention during the seven years I have been concerned with extension reports.

Statistical records and reports of extension workers contain evidence of a quantitative nature that can be used in measuring progress in terms of activities or methods of agents, participation by the people in extension activities (as leaders), and assistance rendered to families.

While there is no generally accepted standard by which to interpret the accomplishments, these data do provide evidence which enables one to (1) compare one county's accomplishments with those of other counties in the State, average for the State, or average for the United States, (2) compare a county's accomplishments on some items with the potential, (3) compare a county's accomplishments on the same items from year to year, and (4) relate one item to another.

Narrative reports provide evidence of a quantitative and descriptive nature, and are especially helpful when comparing present day situations with previous conditions. They are containing also an increasing number of case histories of families who have benefited from extension work.

We all have had opportunities to observe uses of records and reports in county extension offices. A little over a year ago there was an article in the Alexandria paper telling of an analysis the Fairfax County (Va.) agent had made of office visits and telephone calls by phases of subject-matter. The emphasis and trends of this analysis provided information that enabled him to plan the extension program to better meet the needs of the people.

In another State I was told of how the district agents were effectively using the monthly reports as a supervisory tool in directing the agents in a better balance and more timely use of certain extension methods. In one instance the agent was making more contacts through farm visits

than were in attendance at the meetings he held. Another agent was preparing his radio talks and newspaper articles on subjects different from what the people were asking about through their office visits and telephone calls. In each case an objective study of the monthly report by the agent and supervisor together brought about the desired change.

Any research on extension methods will rely rather heavily upon extension records for a count of these methods, - and they are things an agent can count. When extension methods used by agents are recorded by phase of subject-matter it provides evidence of opportunities people had to receive information. Here in the Federal office is compiled annually a national summary of the county extension workers' statistical reports. It contains totals for the year, compares them with the previous year, and for some items shows long-time trends. For example, personal contacts through office calls, telephone and farm visits; number of local leaders; and meetings held to train local leaders.

In addition to the national summary, at least one special analysis of report data is made each year. Several years ago the "Statistical Analysis of 4-H Club Work" was compiled; also "Progress in Home Demonstration Work" which contains much information of trends in various phases of that work and shows "averages per agent" for many of the important extension methods used. Last year, "Extension's Coverage of Its Clientele" was prepared from annual report and census data and shows in pie-chart form the proportion of potential clientele on farms and off farms being reached by the agricultural, home economics, and 4-H programs. "Some Major Trends in Cooperative Extension Work" was prepared several years ago to show major trends that have taken place for some of the more important phases of extension work.

We in the Federal Extension Service use evidence in the reports as an aid in helping a State to plan and conduct a research study. Reports of the activity to be studied, trends in extension methods used, and similar information are analyzed in preparing for these studies.

What I have attempted to do in these few minutes is to remind you that extension records and reports are a source of much information that can be used in extension research.

DON'T SELL REPORTS SHORT. USE THEM!

IMPLEMENTING STATE EXTENSION RESEARCH

Luke M. Schruben
Assistant Administrator, FES

The extension program today is a \$100,000,000 operation involving in the neighborhood of 13,000 employees. Ten years ago the total budget for extension work was \$36,000,000 and there were slightly less than 10,000 employees. These figures are indicative of the increases in costs of operation as well as in the overall expansion of extension work. They are significant from the standpoint of realistically looking at our job today.

Currently, extension research in most States is assigned to individuals who have other responsibilities. The extension program in many States is sufficiently large to justify a full-time extension research program.

Because of the way funds are appropriated for extension and the fact that program action takes place in counties, the primary responsibility for extension research must head up at each of the land-grant colleges. As we move forward with an expanded extension program, I believe it is imperative that each State and the Cooperative Extension Service, as a whole, chart a course that is based on facts; facts that can be obtained only through a careful analysis of the effectiveness of our current efforts in handling current problems.

Extension research work has been designed to measure first the effectiveness of on-going programs. Without this information extension administration cannot be expected to make sound decisions regarding the allocation of extension resources. Research work in this field should also measure input-output relations; that is, what do we accomplish in relation to dollars expended.

To develop and test more effective methods and techniques the help of all members of the staff is needed. County workers, specialists, supervisors, and administrators have much to offer research in devising and trying out new methods; in discovering what does not work as well as what does. Extension research can no more be conducted in an ivory tower than can any other extension effort, if it is to be successful. The entire staff should be provided the assistance necessary for critical self-appraisal of its efforts.

There are no doubt many organizational arrangements which would prove satisfactory in the further development of extension research. In many States the job is sufficiently challenging to justify a separate project agreement, plan of work and operating procedure similar to other projects within each State.

A budget should be provided for the project.

It is recognized that although short-run studies must be made to meet emergency situations, the particular operation of the extension project should be designed with the long view in mind.

As previously mentioned, most extension educational research, because of program responsibility and fiscal arrangements, must take place in the field. This does not mean, however, that the Federal Extension Service has no responsibility. It would seem to me that the Federal office can make its greatest contribution by working with the States on such as the following:

1. Assisting in the design of extension research to insure comparability of results between States.
2. Developing adapted sampling techniques.
3. Interpreting results of the research results.
4. Combining results of extension research conducted in more than one State when possible.
5. Disseminating results of research to insure its greatest use.
6. Conducting training courses for extension personnel assigned to research projects.

It is my firm belief that successful extension methods designed to meet particular situations have wide application between States. For example, successful procedures for working with low income families that may be developed in Virginia should be equally applicable to extension work with low income families in other States.

The problem of communication between States is a very serious one. Extension research activities designed to measure the effectiveness of extension efforts or to experiment with new extension methods must be available to all.

Because of the wide degree of transferability in the area of extension educational methods, a National Advisory Committee to the Federal Extension Service on extension research methods would make a real contribution to the total effort. The make-up of this committee, the frequency of their meetings, and the topics that would be appropriately included on their agenda are not suggested at this time.

The State Land-Grant colleges have many other research facilities on their campuses which are interested in extension work and which are interested in working with extension personnel in getting the job done. All interests and resources should be fully utilized and integrated.

While I see no legal restriction which would prohibit a State from allocating funds at its disposal for extension research activities, extension research will grow only to the extent that its contribution to the total effort is greater in the minds of extension administration than would be true if those funds were expended for other purposes.

The possibility of using funds allocated by the Secretary of Agriculture on the basis of special needs has been considered by the Extension Organization and Policy Committee. Their recommendation was that such funds be made available for extension research when the research proposal demonstrates that the work will answer an acute problem peculiar to a State and be conducted in such a way that it can be added to the

research of other States, thereby compounding the results. To participate in special needs funds work it will require that a project proposal be submitted, together with budget justification requesting the allocation of special needs funds.

I believe that when the Extension Organization and Policy Committee discussed the use of special needs funds for extension research work they had in mind the establishment of experimental or pilot counties designed to discover new and more effective techniques for working with various groups of the population. They also thought that these same demonstrations and techniques could be used in establishing effective means for working with hard-to-reach groups. In certain areas this would include problems such as adjustments in the pattern of agricultural production, industrialization, and disadvantaged areas due to inadequate resources, droughts, floods, and other conditions.

Staffing of a Research Project: It is generally recognized that the supply of competent extension research personnel is limited. If extension research is to grow, special efforts must be made to interest extension workers, who demonstrate a genuine interest in evaluation, who have the attributes, temperament, and make-up to do research work, and encourage them to take the necessary additional training.

RESEARCH PROGRAM OF THE
NATIONAL PROJECT IN AGRICULTURAL COMMUNICATIONS

John M. Parsey, Research Director

In addition to using research to strengthen and support the total program, NPAC's research activities are guided by two objectives:

1. To encourage productive research in agricultural communications;
2. To stimulate wider and more effective use of research findings by agricultural communicators.

The major elements of the research program are outlined below:

Consultant services.--Within the limitations of staff time and resources, we work with groups concerned with agricultural communications in planning research projects. In cases where we cannot participate directly, we try to suggest others who can help on the problem in question.

Information services.--Activities here are directed toward making known the findings of communication research and encouraging their application. In this area, three services are planned: (a) AGRISEARCH to report and interpret findings of significant studies; (b) interpretations and analyses of groups of closely related studies; (c) bibliographies of research centering around a problem area or concerned with some particular medium of communication. Although communication in agriculture will be the primary source of information, other areas of communication research will be drawn upon.

Encouraging communication research.--To encourage research in communication, two kinds of aids are available: (1) For students interested in research; (2) for research by individuals or groups not interested in additional training. Under the first provision, limited funds are available to aid graduate students in conducting better research than would otherwise be possible. Under the second provision, limited funds are available to groups or individuals interested in doing basic research in communication. In both cases, the emphasis is on aid for basic research rather than assistance for graduate study or for on-the-job operational surveys.

Research planning.--A group representing the USDA-Land-Grant system and related organizations will be called together to outline a research program for agricultural communications. A genuine contribution can be made by identifying areas in which research might be concentrated and suggesting ways of coordinating work in these areas.

Additional information.--Since only the highlights of NPAC's research program can be presented here, readers are invited and urged to send in questions, comments, and suggestions on any aspect of this outline. Please address: NPAC, Wells Hall, Michigan State College, East Lansing, Michigan.

REPORT OF WORK GROUP E

Development of An Expanded State Extension Research Program - Its Organization, Problem Content and Role of Studies Leader

I. Present Status of Extension Research.

It is difficult to give complete and up-to-date information about the present status of extension research in the States because of differences in organization to carry on research, lack of clarity in assignments, divided assignments on research and training, part-time assignments, and recent transfers.

The committee believes that this is symbolic of neglect in assigning to this aspect of extension the importance it deserves. The following is a summary based on the best information available.

A. In the States.

There are 5 full-time leaders of extension research and 5 part-time leaders of research - a total of 10.

In addition there are 15 full-time leaders of extension research and training and 4 part-time leaders of extension research and training - a total of 19. This means 29 persons in 23 States and Puerto Rico.

There are 15 States with extension research committees; 6 States with general extension research committees. Nine States have special research committees set up such as "Committees for Farm and Home Development."

B. In the Federal Office, Division of Extension Research and Training.

There are 9 professional people assigned to research projects, 3 of whom are recent appointments. Each spends some time on training.

The Director and Assistant Director of the Division and the two professional persons assigned to personnel training each does a small amount of extension research.

II. Reasons for Expanded Extension Research Program.

- A. Research is needed in any organization to provide data for many important decisions which must be made. When organizations are small this fact-gathering and analysis can often be handled informally. As organizations become larger it not only becomes possible, it becomes imperative, to build in systematic and objective fact-finding and analysis as a specific and specialized function.

This is the situation faced by the cooperative Extension Services. State Extension offices can ill-afford, with the size and complexity of operation which most of them have, to leave the fact-finding function at an informal and haphazard level.

We have been expanding our educational program. We need research to provide objective evidence in support of this expansion. Our growing program has necessitated an increased size of staff. Research is needed to improve the effectiveness with which potential new staff are trained and to increase the efficiency of those already on the job.

We need research to assist us in giving direction to new programs and in reassessing our present programs. As we move to meet the needs of new groups in the population - such as urban people, part-time farmers, managers of marketing agencies, the disadvantaged, young adults - we need extensive fact-finding to guide us in the services we provide.

Finally, in recognition of the fact that we are no longer the only agency attempting to serve many of our publics, research is needed to improve the efficiency of operation of our particular agency and especially to facilitate effective working relations with other agencies.

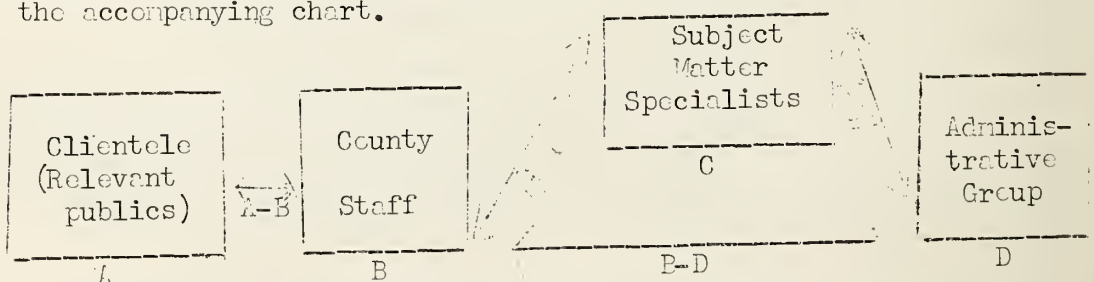
III. Content of the Research Program

A. Modes of Classifying Needed Research

It cannot be hoped to provide here an exhaustive and detailed listing and analysis of the extension research which is needed. We can at least outline a way of looking at the needed research and indicate briefly some of the kinds of research which ought to be done. The method of classification which is suggested here has at least the merit of being different. It is not just put forth as a recommended substitute for any system now current.

Briefly, useful research in the setting in which we are interested can be looked upon as dealing with (1) characteristics and attributes of the persons involved, (2) the process through which transfers of ideas take place among the persons, and (3) the nature of the structure within which these people carry on these processes (i.e., the organizational arrangements, the rights, duties and obligations impinging upon the people involved).

But such a classification is too condensed. It needs somewhat greater elaboration which can, perhaps, best be done by means of the accompanying chart.



Research can be focused upon the characteristic and inter-relations among the persons within any one of the above groups (A, B, C, D) or upon the process and structure which relate any two groups to each other (A-B, B-C, etc.)

C. Coordination of research in Extension

With the intensification of research in Extension based on the need as expressed above, there should be a maximum effort to investigate as wide a variety of fields as possible. To minimize duplication of efforts there should be:

- free interchange of research information developed in any of the states to all other states. This should include research being planned, research in progress, as well as completed research. Consideration should be given to problems common to several states on a regional basis.
- every effort made to cooperate with other departments both research and teaching, of the land grant college, i.e., sociology, psychology, education, etc. that might be doing research which would be helpful to Extension, or might be willing to do research in fields which are of particular interest to Extension.
- consideration given to problems of a nationwide scope as indicated by the States. The Federal office should concern itself with these research problems and assist in coordinating work being done in the several States on these broad programs.
- There should be developed a national advisory committee to the Federal office on research in Extension. This could be a sub-committee of the Extension Committee on Organization and Policy and should include personnel active in the field of research in Extension.

IV. Recommended State Organization for Facilitating an Expanded Extension Research Program

- A. An extension research committee appointed by the Director can render a valuable service in planning and expediting this important phase of the cooperative extension service program. Several States have such a committee. They strongly endorse this form of statewide approach to research in extension.

The major purposes of an extension research committee, as an advisory group to the Director, can be thought of as the following:

1. Determine the major areas of Extension where research is needed - immediate and for the next several years.
2. Recommend types of studies that should receive high priority in the State.
3. Be familiar with, and if possible, make available studies that have been conducted which directly relate to the extension program.
4. Advise as to who is in the best position to direct each study and advise with the project leader in planning and conducting the research.

5. Recommend to the Director, and assist wherever possible, in securing financial aid through the budgets of the State Extension Service, Experiment Station, U.S.D.A., Foundations, etc., that is required for the conduct of the research.
6. Advise as to the need for and qualifications of a person or persons to serve as State Leader of Extension Research.
7. Assist in securing research facilities; i.e., clerical and statistical personnel and equipment and facilities, time required by cooperating members of the staff.
8. Define the functional role of leaders of extension research.
9. Assist in utilizing the findings of Extension research and research in other fields related to the extension program.
10. Assist in relating Extension research to on-the-job, undergraduate and graduate training programs for extension staff members.

A State Extension Research Committee might include on its membership the following types of competencies:

1. Extension administration and supervision
2. Agricultural Experiment Station administration
3. Leader(s) of extension research, both agriculture and home economics.
4. Rural sociologist
5. Agricultural economist
6. Agricultural journalist
7. Educational methods specialist from school of education
8. Representative of the field staff in extension

It is sometimes advisable to have appointed a committee to advise on each research project. Such a committee should be fairly small, e.g. from 3 to 5 members. The project committee may have represented on it certain members of the Extension Research Committee as well as other disciplines related to the study.

- B. The appointment of a State leader of Extension Research, on a full-time basis, in most states, is strongly recommended. There is an urgent need for more scientific facts and principles that will help in making administrative decisions and in training the staff for greater efficiency.

Various foundations, i.e. Ford, Kellogg, etc., have funds and occasionally personnel for doing research that yield much information valuable to Extension.

Many States have statistical service within the College of Agriculture which is available to Extension for consultation and service.

C. Resources of the Division of Extension Research and Training, U.S.D.A.

1. Provide leadership to develop a coordinated national program of research and to serve as a guide for the State leaders of research.
2. Promote an understanding of evaluation in extension through teaching evaluation courses at regional summer schools and through work conferences in States.
3. Assist States in the development of a State program of evaluation.
4. Help to conduct and cooperate with States in training personnel to conduct research.
5. Interpret research made by education, business, and other groups and make application in extension of the principles.
6. Maintain a central file of published studies and unpublished manuscripts for reference use by extension workers. Prepare bibliographies of extension research and periodical reviews of extension studies.
7. Assist Land-Grant College Association committees with planning and conducting nationwide research to provide benchmarks or standards.
8. Review study plans submitted by the various studies leaders and offer suggestions for their improvement.
9. Assist States with improvement of annual reports, reporting systems, and county extension office records.
10. Serve as the central clearinghouse for annual reports of all field employees of the Cooperative Extension Service; publish the National Summary of Extension Activities and Accomplishments.

Making use of Extension Research Findings

The Workshop group felt that greater use could be made of Extension Research findings in strengthening the extension program and made the following suggestions:

- A. Need more information on research that has been done and results of findings.
- B. Need help in interpreting findings and how they can be applied in other State and County situations.

The functions of a state leader of extension research would include the following:

1. Provide leadership for conducting certain extension research projects.
2. Aid and advise other staff members in conducting research projects and in evaluating their program.
3. Provide information that will assist the Director of Extension in establishing policy.
4. Assist the supervisory and training staff in utilizing the findings of research in personnel management and training.
5. Function as a member of the State Extension Research Committee and serve as the liaison person with the experiment station and other departments which are conducting research and have competencies that contribute to extension research.
6. Cooperate with the Division of Extension Research and Training of the Federal Extension Service, U.S.D.A. in coordinating efforts in State, regional and nationwide research projects, plans and policies.

Qualifications of a person serving as State Leader of extension research have been summarized by Meredith C. Wilson as follows:

1. Broad extension background and experience.
2. Training in basic educational principles.
3. Research experience.
4. Research type of mind, a questioning mind - Is it so? What are the facts?
5. Analytical mind, so that he can sort out the significant things from the unimportant things.
6. An honest mind - free from bias - honest with himself.
7. Know good research design and its application.
8. Well-balanced - does not ride hobbies - is not a promoter.
9. Open-minded - he is a fact-finder - he revises his judgment in light of educational facts.
10. Organizes and plans well, as that goes with research.
11. Possesses imagination - sees all kinds of possibilities.
12. Has initiative.

13. Is aggressive. You are in a new field. It is sometimes much easier for people in extension to drift along without facts; it makes for less disturbance in the set-up to be able to roll along evenly and smoothly without looking at how much progress you are making.

C. Relation of Research and Training Functions

1. Extension research is the basis of much of the content in the extension training program.
2. Extension research from State and national projects should be collected in States, uniformly catalogued, and used where applicable in teaching graduate students.
3. Experience in doing a research project is an important means of developing in extension workers ability to judge their work objectively, an understanding of the nature of evidence, skills in collecting, analyzing and interpreting research data and putting them to use in program development. In order to accept and assess research findings experienced extension workers need to be involved in planning and doing research.
4. Somewhere between research and training there is a no man's land where effort is needed to take research findings and draw out the implications for training. Often times the research worker leaves off before this service is performed. There should be more emphasis here in the interpretive process. A word of caution is needed. Persons in charge of research should not be drawn too much into training at the expense of further research effort. We need to recognize that Extension in most of the States is a large enough organization that research and training should now be specialized functions. There should be a close, organizational bond between research and training personnel.
Pointing out the implications of specific research findings to training should be a joint responsibility of research and training personnel.
5. Coordinated research projects can be demonstrations to extension workers of the interrelations between departments and divisions of the university and between extension and other educational agencies.
6. Graduate students can be effectively used in developing phases of long-term research projects on problems of concern in their States. Each year some 200 Extension workers do graduate study. Less than half of these do work for credit; all doing credit work are not electing the thesis requirement. We do have, however, a sizeable number of students each year whose efforts need to be used more consistently and to better effect in Extension research.

7. The National Agricultural Extension Center for Advanced Study will provide about 10 graduate research assistantships; The National Project for Agricultural Communications will provide a "limited number" of research assistantships in the area of communications. These opportunities need to be given careful consideration in a coordinated research program.

D. Involvement of Others

1. A committee approach to planning and conducting research is expensive in terms of time and budget. Involving people, however, pays off in terms of sharper research projects and maximum use.
2. Key people who may be able to contribute should be drawn into planning extension research. These will include staff members of such departments as education, psychology, sociology, philosophy, communications, public and business administration, etc.
3. State Experiment Station personnel have contributions to make to problems of research design and to the selection of problems for study. Such personnel should be involved to a greater degree in the planning and conducting of extension research.
4. Persons who may be able to bring about use of study findings should be involved in planning and conducting studies. Such persons include supervisors, specialists and those whose experience gives them an insight into the situation at the county level.

V. Resources Available and Needed

A. In the States.

The committee has found it impossible at this time to determine the amount of monies allocated or spent for research in Extension in the States. We feel that the importance of research warrants a specific project and budget, and that those states having a State Leader of Extension Research provide necessary funds for travel, clerical, statistical, publication and other assistance to facilitate research decided upon.

B. Personnel.

There are many extension workers, State and Federal, who have had training in research techniques applicable to Extension but the numbers are not as large as needed in this field.

There are research workers in other departments of the land grant colleges who are available for consultation and who are willing to undertake research in cooperation with Extension in areas of concern to all.

- C. A person in charge of extension research and training in each State could give invaluable help in this area as well as help carry out further extension research in each State.
- D. Need to find ways to involve more extension workers in doing extension research and in making use of it. Extension workers who participated in an extension study made in Cecil County, Maryland in 1954, have adopted and applied findings to own county situations and have made small surveys in their own counties. Agents not participating in the study have not adopted and used information to strengthen extension program. Some extension research done in other States can be applied in local States --- need change in attitude for this to be very effective.
- E. One way to create an interest and desire in making more effective use of Extension research findings would be to hold a conference similar to one held by Federal Extension Service in each State.
- F. Other suggestions for making use of Extension research findings:
 - 1. Research material prepared and reported in such a way that it will be more effective in training and teaching.
 - 2. Help personnel to realize that extension research done in one area or State, if it is sound, has application in other areas.
 - 3. Need better way of letting others know about research findings in country.
 - 4. Need Extension research and training leader in more States - he or she could help with making findings useful in all parts of the State.
 - 5. Specialists and supervisors need to understand meaning and know how to use.
 - 6. Need to make greater use of ---- to:
 - (1) Guide or redirect program planning
 - (2) Using effective methods
 - (3) Train personnel
 - (4) Be more effective and efficient
 - (5) Train new personnel
 - (6) Change attitudes

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CLOSING REMARKS

Meredith C. Wilson

Director, Division of Extension Research and Training

We have just listened to a series of forward-looking reports presented by the various work groups. The time has arrived for the workshop to adjourn. First, I would express the appreciation of the Division of Extension Research and Training to the 25 State Directors of Extension who made the large attendance of State extension representatives possible. Extra thanks go to Directors Ahlgren of Wisconsin and Miller of Michigan for making it possible for Drs. Wilkening and Nielson to participate. On behalf of all of you I would thank those from outside the Extension Service ranks for their generous contributions to our general session programs. I refer to Dr. Shaw, ARS; Dr. Paarlberg, Secretary's Office; Dr. Goodsell, ARS; Dr. Knutson, HEW; Messrs. Grant and Burrows, AMS; Dr. Carpenter and Mr. Greenhill of Pennsylvania State University; and Dr. Kaufman of Mississippi State College.

Our appreciation also goes to the various members of the Federal Extension Service who contributed to conference program and plan.

I have not prepared a formal conference summary. That is hardly necessary. However, there are a few things I should like to touch upon by way of emphasis.

1. There is a close relationship between sharp objectives and the use of research findings. It is important that the person planning the study envision the tables, graphs, etc., which will be used in the final analysis stage. Only in that way can serious gaps in data be avoided.
2. The usefulness of research findings is often seriously compromised because the study objective was not clearly thought through. Variation in objectives, where essentially the same problem is under study, frequently prevents the combining of the study findings.
3. Extension research is concerned with results which must be compared before they attain significance; i.e. with other places, other periods of time, control groups, etc. "We cannot compare alternative treatments until we have agreed upon measures of postulated outcomes acceptable as an index for determining their relative efficiency."
4. I am concerned over a tendency of some research workers, including those engaged in subject matter research, as well as those doing research in extension, to confuse cause and effect. The age of a farmer may influence his adoption of a recommended practice. The adoption of the practice cannot possibly affect the farmer's age. The sorting of data should be according to possible cause, not by outcome, if cause and effect relationships are being explored.

5. Without in any way minimizing the importance of involving those likely to be interested when planning a study, I would emphasize that involvement of others cannot replace imaginative thinking on the part of the research worker himself.
6. The problem of staffing an expanded extension research program in the several States will present a real problem. There are not enough persons with the desired training and experience to go around. The answer is, I think, to select young, experienced extension workers with a research type of mind, get them on the job and then arrange for them to obtain the additional training the developing extension research program may require.

But enough! We have already covered too much ground for a five-day conference. With the aid of Kenneth Warner we shall make every effort to place a copy of the workshop proceedings in your hands before the month of June rolls by. I am confident that States not represented will find the document valuable.

Finally, I would express appreciation for the friendly cooperative spirit which has pervaded all the sessions. You have accepted work group assignments willingly, and performed the added duties of group chairmen and secretaries with cheerful dexterity.

We are adjourned.

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